The Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey: Public School Results

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THE MICHIGAN SUBSTANCE ABUSE RISK AND PROTECTIVE FACTORS 2000/2001 STUDENT SURVEY: PUBLIC SCHOOL RESULTS

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1. INTRODUCTION AND LITERATURE REVIEW

In an effort to obtain baseline information on substance use and risk and protective factors among various populations, including adolescents, the State of Michigan's Department of Community Health (MDCH) was funded by the federal Center for Substance Abuse Prevention (CSAP) to conduct a family of substance abuse prevention demand and needs assessment studies. RTI of North Carolina collaborated with MDCH in conducting the studies.

One of the studies conducted in the Michigan Prevention Needs Assessment Project was the Prevention Needs of the Student Population Study. This study was designed to

- provide epidemiological data on the prevalence of alcohol, tobacco, and other drug use among Michigan public and private school students in grades 6, 8, 10, and 12, and
- identify potentially "modifiable" risk and protective factors that may be useful to consider in planning and targeting prevention programs and services.

The ***Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey*** was administered to over 9,000 Michigan students enrolled in grades 6, 8, 10, and 12; findings and methods are contained in this report.

To present the data and information from this study in a meaningful manner, two reports were prepared; one report focuses on the findings from data collected from public school students, and a second focuses on the findings from private school students. **This report presents the results of the public school survey and is divided into six chapters.** The remaining sections of this chapter cover the purpose and rationale for this study and background literature. The second chapter presents the methodology (including a discussion of the questionnaire, sampling, data collection, and data processing), key definitions and measures, procedures for analysis, and strengths and limitations of the data. Chapter 3 provides prevalence estimates of Michigan public school students' use of tobacco, alcohol, and other drugs; Chapter 4 provides prevalence estimates of violent and delinquent behavior; and Chapter 5 provides findings about community, school, family, and peer-individual risk factors associated with students' substance use. Chapter 6 summarizes the key study findings and their implications for prevention planning and resource allocation, policy, and services. In addition, the report includes three appendixes, which provide supplementary tables (Appendix A), detail on weighting and suppression procedures (Appendix B), and the instrument and data collection materials (Appendix C).

1.1 Purpose and Rationale

Numerous studies have documented the negative consequences associated with substance abuse among adolescents, including the following:

- *suicidal behavior* (Burge, Felts, Chenier, & Parrillo, 1995; Crumley, 1990; DuRant, Smith, Kreiter, & Krowchuk, 1999; Garrison, McKeown, Valois, & Vincent, 1993; Harrison & Luxenberg, 1995; Lester, 1999; Windle & Windle, 1997; Woods, Lin, Middleman, Beckford, Chase, & DuRant, 1997);

- *delinquency and violence* (Donovan & Jessor, 1985; DuKarm, Byrd, Auinger, & Weitzman, 1996; DuRant et al., 1999; Ellickson, Saner, & McGuigan, 1997; Grunbaum, Basen-Engquist, & Pandey, 1998; Osgood, Johnston, O'Malley, & Bachman, 1988);

- *high-risk sexual behaviors* (Donovan, Jessor, & Costa, 1988; Duncan, Strycker, & Duncan, 1999; Fortenberry, 1997; Hundleby, 1987; Ketterlinus, Henderson, & Lamb, 1990; Orr, Beiter, & Ingersoll, 1991; Valois, Oeltmann, Waller, & Hussey, 1999); and

- o*verdose and adverse reactions requiring medical interventions*, *possible emergency room treatments, hospitalizations, and related consequences*.

Clearly, substance use can create both acute near-term and long-term problems for students and their families.

Given the high prevalence and devastating impact of substance abuse, drug and alcohol use and abuse are high priorities for federal, state, and local governments. At the federal level, the focus is shifting, with increased emphasis being placed on prevention efforts that target adolescents. The 2002 National Drug Control Strategy states that "Prevention is the most cost effective approach to the drug problem, sparing society the burden of treatment, rehabilitation, lost productivity, and other social pathologies (Office of National Drug Control Policy [ONDCP], 2002).

At the state and local levels, developing and targeting effective prevention and intervention strategies and evaluating their impact requires solid information on the extent of alcohol and drug use among adolescents. MDCH initiated the Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey to obtain such information about the nature, severity, and range of substance use and abuse among adolescents in order to better plan primary and secondary prevention efforts.

The overall goal of the survey is to estimate the number and characteristics of middle and high school students in Michigan who are at elevated risk of alcohol, tobacco, and other drug use and related problems or who are already substance users. A fundamental premise of prevention science is that in order to prevent the future occurrence of a behavior, risk factors for that behavior must be decreased and/or protective factors enhanced. Therefore, this survey was designed also to identify risk and protective factors for substance use among the Michigan student population. This report on the results of the recently administered survey will begin the process of distinguishing various population subgroups with respect to their risk and protective factor profiles. Note that this study focuses exclusively on in-school students; therefore, the results are representative of the *student population*, not of youth in general.

1.2 Background Literature

1.2.1 Epidemiology of Alcohol, Tobacco, and Other Drug Use in Adolescence

The epidemiology and developmental course of alcohol, tobacco, and other drug use among youths have been well documented empirically from epidemiological surveys such as the Monitoring the Future (MTF) project (Johnston, O'Malley, & Bachman, 1999) and from multiple longitudinal studies (e.g., Jessor & Jessor, 1977; Kandel, Kessler, & Marguilies, 1978; Newcomb & Bentler, 1988). These data reveal relatively consistent age-specific developmental patterns of experimentation and regular use, particularly associated with alcohol and cigarettes, with the prevalence of consumption increasing with age. For example, according to the 1999 MTF project, approximately one quarter of 8th graders, 40 percent of 10th graders, and one half of high school seniors reported use of alcohol in the past month (Johnston et al., 1999). Approximately 17 percent of 8th graders, 26 percent of 10th graders, and 35 percent of high school seniors reported cigarette smoking in the past month (Johnston et al., 1999).

Studies (e.g., Anthony & Petroris, 1995; Kandel, Yamaguchi, & Chen, 1992; Martin, Kaczynski, Maisto, & Tarter, 1996) continue to confirm the progressive stages of drug involvement starting with substances legal for adults, followed by marijuana, and then other illicit drugs (the "gateway theory"). A 1997 Center on Addiction and Substance Abuse (CASA) Report found that among 12- to 17-year-olds with no other problem behaviors, those who drank alcohol and smoked cigarettes at least once in the past month were 30 times likelier to smoke marijuana than those who did not. These correlations were more pronounced for girls than boys: for girls, 36 times likelier; for boys, 27 times likelier. Among 12- to 17-year-olds with no other problem behaviors, those who used these three gateway drugs (cigarettes, alcohol, marijuana) in the past month were almost 17 times likelier to use another drug like cocaine, heroin, or acid. These correlations were stronger for boys than for girls: for boys, 29 times likelier; for girls, 11 times likelier. If cigarettes, alcohol, and marijuana are indeed gateways to other drug use, drug prevention strategies must focus on younger children and on these "gateway" substances. An

investment in prevention and treatment directed at youths 9 to 19 years old may have an impact that will last a lifetime in terms of preventing further drug use.

Findings on the epidemiology and developmental sequencing of alcohol, tobacco, and other drug use among adolescents have prompted focus on adolescence as an optimal time to target prevention and intervention programs. The potential to alter the typical course of development of experimentation and use, and to influence future outcomes, has been thought to be greatest during this period, when youngsters are not yet commonly using alcohol, tobacco, and other drugs. Estimation of the size of the population potentially in need of prevention programming is indicated by data measuring age-specific patterns of alcohol, tobacco, and other drug use. Typical indicators of use are the prevalence of substance use (e.g., lifetime and current use of tobacco, alcohol, marijuana, and cocaine), levels of use (e.g., quantities of cigarette and alcohol use), and age at first use of various substances.

1.2.2 Risk and Protective Factors for Alcohol, Tobacco, and Other Drug Use in Adolescence

Risk factors, especially in the absence of protective factors, can predicate subsequent substance use and thus are particularly relevant to prevention programming. Identification of specific populations in which risk factors are high and protective factors are low allows identification of prevention needs and facilitates targeting programming the reduction of risk factors and the enhancement of protective factors (Hawkins, Arthur, & Catalano, 1997).

Social research has identified numerous and interrelated factors that increase or decrease the probability of alcohol, tobacco, and other drug use and related problems among youth. These risk and protective factors are found at multiple levels, including the individual, the family, the peer group, the school, and the community (Hawkins, Catalano, & Miller, 1992; Kandel, Simcha-Fagan, & Davies, 1986; Newcomb & Felix-Ortiz, 1992). Activities and programs intended to prevent adolescent use typically have been implemented in schools, have targeted risk factors, and have been aimed at single levels (e.g., individual-level factors). There is increasing recognition, however, of the need for and potential effectiveness of broad-based efforts focused on multiple levels, as well as on both risk and protective factors (Hawkins et al., 1992, 1997; Linney & Wandersman, 1991; McLeroy, Bibeau, Steckler, & Glanz, 1988). The rationale underlying the broad-based approach is that no single factor has been identified that largely accounts for drug use; instead, the complex interaction of risk and protective factors requires a multipronged approach.

Over the past three decades etiological research on adolescent use of alcohol, tobacco, and other drugs, as well as related problems, has focused almost exclusively on identifying risk factors that promote use. A wide array of risk factors has been identified both within the

individual and within the social context in which individuals live. Hawkins et al. (1992, 1997) cataloged key risk factors identified in the literature, including individual and interpersonal factors and contextual factors. The numerous individual and interpersonal risk factors included (1) physiological factors (i.e., biochemical and genetic factors), (2) family drug use, (3) family management practices, (4) family conflict, (5) low bonding to family, (6) early and persistent problem behaviors, (7) academic failure, (8) low commitment to school, (9) peer rejection in early grades, (10) association with drug-using peers, (11) alienation and rebelliousness, (12) attitudes favorable to drug use, and (13) early onset of drug use. Contextual factors included community laws and norms favorable to drug use, availability, economic deprivation, and neighborhood disorganization. Similar inventories of risk factors have been identified in multicausal studies of adolescent use of alcohol, tobacco, and other drugs (e.g., Bailey, Flewelling, & Rachal, 1992a; Castro, Maddahian, Newcomb, & Bentler, 1987; Kandel et al., 1986; McAlister, Krosnick, & Milburn, 1984; Newcomb & Felix-Ortiz, 1992). The findings indicate that the greater the number of risk factors present, the greater the risk of substance abuse.

Researchers have devoted considerably less attention to factors that protect adolescents from drug involvement, although there is increasing recognition of the potential importance and relevance to prevention policy and programming of protective factors (Hawkins et al., 1992, 1997; Newcomb & Felix-Ortiz, 1992). Protective factors are believed to work by moderating or completely blocking the effect of factors that increase the risk for drug involvement. There is some empirical support for some protective factors, including individual resilience, strong family relationships, a supportive family environment, problem-solving skills, and self-efficacy beliefs (Hawkins et al., 1992, 1997; Kandel et al., 1986; Newcomb & Felix-Ortiz, 1992). Hawkins et al. (1992) suggested that such factors are consistent with a social development model that emphasizes the role of bonding to prosocial family, school, and peers as a protection against substance abuse. In particular, these authors identified four elements of social bonding that are inversely related to substance abuse: (1) strong attachments to parents; (2) commitment to schooling; (3) regular involvement in church activities; and (4) belief in the generalized expectations, norms, and values of society. Protective factors are believed to function in a similar manner to risk factors, that is, across multiple domains. The more numerous the factors, the greater the protective effect.

2. METHODOLOGY

This study was designed to provide the State of Michigan with systematic information about the nature and severity of substance use among various adolescent subgroups, as well as information on risk and protective factors for substance use. Students in grades 6, 8, 10, and 12 in Michigan public schools make up the population reported on here. The data were collected from September 2000 to May 2001 by RTI. This section describes the methods used to collect the data for the survey.

2.1 Interagency Cooperation

Conducting this survey required interagency cooperation. Initial endorsement for the survey was obtained during the proposal development process. This endorsement was renewed before beginning data collection and before active support from the Michigan Department of Education (MDE) was received.

Initially, the Michigan Department of Community Health (MDCH) planned to survey only 8th, 10th, and 12th grade students. During the intensive planning phase, however, MDCH made arrangements with the MDE and the Michigan Office of Drug Control Policy (ODCP) to add 6th graders to the survey sample design. Initial funding from the federal government to support the survey effort was supplemented with funding from ODCP for this addition.

The MDE and MDCH also agreed to collaborate to ensure that the MDE Youth Risk Behavior Survey (YRBS) and the MDCH Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey would impose the minimum amount of burden on participating Michigan schools, students, and staff. It was agreed that schools would not be approached to participate in both survey efforts. It was agreed that MDE would first select its sample of 50 public schools to approach to participate in the YRBS, and subsequently MDCH would select from the remaining public and private schools a second sample of schools to approach to participate in the 2000/2001 Student Survey. MDE and MDCH agreed that school districts with three or more high schools could be contacted for both student surveys, but where two or more high schools from the same school district were selected in the MDE and MDCH sample, an agreement was made to contact these districts jointly.

This approach worked in all parts of the state except in Detroit Public Schools. The federal Centers for Disease Control agreement with Detroit schools involves every public high school to carry out the YRBS. As a result, there were no leftover schools to approach for the MDCH survey. MDCH project staff approached Detroit school administration with the need to have some level of participation in the effort. Agreement was worked out to conduct the survey in

enough Detroit schools to provide representative findings. This planning strategy minimized the burden on individual schools and allowed both surveys to be carried out successfully.

2.2 Instrumentation

The 2000/2001 Student Survey questionnaire was adapted from the Student Survey of Risk and Protective Factors and Prevalence of Alcohol, Tobacco, and Other Drug Use, which was developed by the Social Development Research Group (SDRG) at the University of Washington (Hawkins, Arthur, & Catalano, 1997). The SDRG questionnaire originally was developed for use in the six-state consortium for substance abuse prevention needs assessment studies sponsored by the Center for Substance Abuse Prevention (CSAP). With the inclusion of 6th grade students, it was decided that a few of the SDRG questions and scales were too sensitive for 6th graders. These items, which focused primarily on family characteristics, were deleted from the questionnaire. The final version of the questionnaire was printed on an electronically scannable form prepared by RTI (a copy of the questionnaire is included in Appendix C).

2.3 Sample Design

The universe for the sample was all Michigan public school students enrolled in grades 6, 8, 10, and 12 (approximately 481,740 students). As mentioned earlier, special education schools and schools currently participating in the Youth Risk Behavior Survey (being carried out by the Michigan Department of Education) were considered ineligible for this survey initiative and therefore were removed from the sampling frame. There were 1,987 public schools with one or more of the eligible grades on the sampling frame.[1]

A state-representative sample of 95 public schools was randomly selected. The sample was stratified by region and grade to ensure adequate representation for each of these variables.

The four eligible grade levels (6, 8, 10, and 12) in combination with seven levels of geographic region formed the explicit stratification used for the public school sample. Chromy's (1979) sequential sampling algorithm was used to select schools with equal probabilities. Serpentine sorting of the sampling frame within explicit strata was used to achieve additional implicit stratification. For public schools, the implicit strata were urbanicity (urban, suburban, and rural) and eligible grade enrollment.

There were no subsequent stages of sampling, but rather students enrolled in any of the four eligible grades at the sample schools were eligible. All students within the selected grades were

[1] The sampling frame utilized was the Common Core of Data (CCD) for public schools.

asked to participate in the survey. Surveys were administered in a variety of classrooms, and it was left to the schools to determine the classroom that would cover all eligible students.

2.4 School and Student Recruitment Procedures

School Recruitment. The second step in gaining school cooperation was gaining school district approval to proceed with the survey. Staff of MDCH conducted district and school recruitment procedures. The district recruitment process began with a mailing of recruitment letters to all superintendents of sampled schools asking them to allow their schools to participate in the survey (Appendix C). The letter introduced the project, conveyed its purpose and importance, and encouraged participation; the package also contained a draft of the questionnaire and parental consent form. The letters and accompanying materials were prepared jointly by MDCH and RTI, and they were mailed by RTI. Approximately one week after the mailing, staff from MDCH began making follow-up calls to the superintendents to seek permission to conduct the study.

At the same time, a recruitment package containing all of the above materials, plus a school agreement form (a fax-back form), was mailed to the principal of each sampled school. The letter and accompanying materials were prepared as well as mailed by the MDCH. Approximately 1 week after mailing the principal recruitment letters, staff from MDCH began making follow-up calls to school principals to solicit participation. Staff from MDCH made every effort to elicit cooperation, answering questions, addressing concerns, and encouraging participation.

Principals who wanted their schools to participate in the survey were asked to complete the school agreement form and fax it to MDCH. The school agreement form solicited information necessary for study planning and sampling (i.e., a study contact name, enrollment information on sampled grades, and both a primary and alternate survey date).

MDCH forwarded the completed agreement forms to RTI, which then sent a verification letter to the participating school (Appendix C). The letter confirmed that the agreement form had been received, and it welcomed the school to the project. The verification letter also provided a brief overview of the survey administration schedule and activities. RTI also included a packet of information for each participating teacher, informing the teacher that (1) the school had agreed to participate in the survey, (2) the survey would take place in the teacher's class, (3) the teacher would be responsible for administering the survey, and (4) the survey would be administered on a specified date. A protocol for survey administration was included with the teacher letter.

Student Recruitment. RTI's Internal Review Board approved passive parental consent for participation in the school survey. However, the MDCH decided to allow each school to choose either active or passive consent, and RTI developed both types of consent letters/forms. The letters informed parents that their child was selected to participate in the study and that the child's participation was both anonymous and voluntary. The passive consent letter asked parents to return a *denial of permission form* in a postage-paid envelope if they wished to decline the survey for their child. The active consent letter asked parents to return a *permission form* in a postage-paid envelope if they agreed to allow their child to participate (Appendix C). Only 1 of the 58 participating public schools requested active parental consent.

Schools were also given the choice of mailing consent letters to parents directly (local mailout) or having RTI mail them. All but two schools chose to mail the letters directly, and RTI put together the appropriate number of parent consent letters and forms, placed them in envelopes, and sent them to each school. The schools then affixed address labels and mailed the letters to the students' parents. For the two schools that chose to have RTI mail the letters, MDCH obtained mailing lists from the schools and forwarded them to RTI, which then affixed address labels and mailed the consent letters. The passive consent letters were mailed locally approximately two weeks before the date of survey administration and four weeks ahead of time if mailed from RTI. Active consent letters were mailed four weeks before the survey date. Permission and denial of permission forms were returned to the schools' survey coordinators, who maintained a record of students whose parents had asked that their children not participate and delivered this list to the participating teachers prior to administering the survey.

Student consent was obtained at the beginning of the survey administration period. Survey administrators (i.e., classroom teachers) read a consent form that explained the purpose of the study, assured students of the anonymity of their responses, and asked for their participation (Appendix C). Students who did not wish to participate were asked not to take a survey when the materials were passed out and to work quietly at their desks.

2.5 Data Collection

RTI prepared data collection materials for each participating school and mailed materials to each school's survey coordinator. Survey coordinators then prepared one packet of materials for each participating classroom. Each class packet contained the following:

- one survey booklet for each student in the class,
- a second copy of survey administration instructions for the teacher,
- a cover sheet,
- an individual envelope for each student, and
- larger classroom envelopes (one for every 15 to 20 students).

Approximately one to two days before the survey was to be administered, the survey coordinator delivered the materials to participating classrooms. The classroom teachers administered the survey during a designated class period. To increase the likelihood of valid responses, considerable precautions were taken to protect the anonymity of individual students. First, instructions to students explained that data from their class would not be reported, and that no one would be able to associate them with their survey responses. Second, students were seated so that other students could not observe their responses. Third, they were provided with a blank piece of paper to cover their answers. Finally, students were instructed to seal their completed questionnaires in individual envelopes and then place their own envelope in a larger class envelope. The classroom envelope was then sealed and given directly to the school's survey coordinator without anyone from the school seeing students' responses.

The survey coordinator collected the classroom envelopes with completed questionnaires and any other used or unused survey materials from each classroom teacher promptly after the survey administration period. The survey coordinator reviewed the contents of the retrieved material to ensure that all necessary materials were present. The coordinator also reviewed the summary form that teachers were asked to complete while students completed the survey. The summary form collected information on the number of students who completed the survey, the number of parent refusals, the number of student refusals, and the number of students who were absent.

Survey coordinators packaged all survey materials into shipping cartons and returned them to RTI. After all participating schools administered the survey, MDCH mailed a thank you letter to the participating school superintendents, principals, and participating teachers (Appendix C). The letter expressed appreciation for all the individuals involved in the survey, thanked them for their efforts and cooperation, and provided instructions on how to receive the incentive for participating.

In planning the school survey effort, MDCH project staff were aware that schools are often inundated with requests for their students to participate in all sorts of survey efforts and other initiatives that involve use of classroom time for students. Such requests are typically not well received. School decision-makers must balance these requests in terms of burden/costs and potential benefits, while keeping in mind that the primary orientation of schools is to educate students. MDCH project staff decided that approaching schools to solicit their cooperation for this survey would be most successful if both practical and financial incentives could be provided.

The MDCH incentive strategy included a plan whereby each participating school's principal or contact person would have the opportunity to obtain up to $750.00 worth of substance abuse prevention materials for their school (this included pamphlets, posters, videos, etc.) through a process arranged by MDCH. Materials were made available through two nationally recognized

distributors of prevention materials; Hazelden and the Educational Materials Center (EMC) at Central Michigan University (distributor of Michigan Model School Health Curriculum materials). Schools could select the desired materials and fax in the order forms. MDCH authorized each order and arranged for payment by MDCH and shipment of the prevention materials. About half of the schools that participated in the survey took advantage of this incentive.

In addition, MDCH emphasized that findings and results of the survey would be very useful to schools in developing and justifying funding applications, including those involving Safe and Drug Free Schools funding managed by the Office of Drug Control Policy in MDCH.

MDCH interest in survey results focused on planning regions and statewide findings, so results of individual schools from a relatively small sample of participating schools are of limited value in statewide and regional planning. MDCH would not produce individual school results in its reports. However, to provide potentially further incentive for schools to participate, it was decided that each participating school would have the opportunity to obtain its school survey results, through a process arranged by MDCH and its contractor RTI. A small number of schools sought such reports.

2.6 Response Rate

Altogether it was possible to collect data from 58 of the 95 sampled public schools eligible; this resulted in a school response rate of 69 percent (Exhibit 2.1). School response rates varied across region, ranging from a high of 86 percent to a low of 57 percent.

In all, 11,822 public school students were asked to participate in the survey, and 8,912 students completed questionnaires. However, a total of 386 questionnaires were discarded, because the respondent (1) was in an incorrect grade (i.e., a grade other than 6, 8, 10, or 12), (2) admitted being dishonest on most of his or her answers, or (3) consistently completed questions in an inconsistent manner (see Section 2.7 below). Therefore, the overall student response rate, fairly consistent across region, was 78 percent (Exhibit 2.1). They ranged from a high of 87 percent to a low of 66 percent.

The overall public school response rate for the Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey, taking into consideration both the school and student response rates, was 54 percent **[school response rate * student response rate/100]**. Exhibit 2.1 also displays overall response rates by region, which ranged from 44 percent to 72 percent.

Exhibit 2.1 School and Student Response Rates for the Michigan School Survey (Public Schools): 2000/2001

	Upper Peninsula	Northern	Western	Central	Eastern	South-eastern	Detroit	Total
School:								
No. of Schools Sampled	21	11	16	7	13	15	12	95
No. of Schools Eligible	21	11	12	7	13	11	9	84
No. of Schools Participating	12	9	8	6	9	8	6	58
Response Rate[1]	57%	82%	67%	86%	69%	62%	67%	69%
Student:								
No. of Students Sampled	1,779	1,514	1,457	919	1,191	2,576	2,386	11,822
No. of Students Eligible[2]	1,769	1,373	1,319	902	1,177	2,546	2,356	11,442
No. of Valid Surveys	1,435	1,060	1,142	758	968	1,999	1,550	8,912
No. of Parental Refusals	52	52	17	20	45	75	23	284
No. of Student Refusals	22	72	21	32	5	85	65	302
No. of Absent	186	130	104	65	121	317	635	1,558
No. of Discarded Surveys[3]	74	59	35	27	38	70	83	386
Response Rate[4]	81%	77%	87%	84%	81%	79%	66%	78%
Overall:								
Response Rate[5]	46%	63%	58%	72%	56%	49%	44%	54%

[1] School response rate is calculated by dividing the number of participating schools by the number of eligible schools.

[2] Students in grades 7, 9, and 11 who completed the survey were ineligible for the survey and are therefore excluded from analysis and response rate calculations.

[3] Includes surveys in which responses were deemed dishonest or unreliable.

[4] Student response rate is calculated by dividing the number of valid surveys by the number of eligible students.

[5] The overall response rate is calculated by multiplying the school and student response rates.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

2.7 Data Processing and Weighting

Data Processing. Completed questionnaires were returned to RTI for scanning and editing. RTI ran consistency checks on the data to exclude careless, invalid, or logically inconsistent responses. Surveys were excluded from the final analytic file if they met any of the following criteria:

- Students were asked to indicate their honesty level in completing the survey. The surveys of students who reported that they were not at all honest were deleted from the analytic file.
- To help determine whether students were answering affirmatively without carefully reading the questions, students were asked about their use of a fake drug. Surveys from students who answered that they had used the fake drug derbisol in both the lifetime and the past month were deleted.
- Surveys from students who reported using four or more drugs 40 or more times in their lifetime.
- Surveys from students who reported they were in any grades other than 6, 8, 10, or 12.

Weighting. The selection of schools was conducted such that all schools within the same explicit stratum would be selected with the same probability. Sampling weights for schools and students were computed as the inverse of their sample selection probabilities. These weights were then adjusted to compensate for survey nonresponse and coverage bias.

Because all sample schools did not agree to participate in the study, the initial sampling weights of responding schools were adjusted to compensate for missing data arising from nonresponding schools. These adjustments were made using sample-based adjustment cell weighting, which is described by Kalton and Maligalig (1991), Jones and Chromy (1982), and Chapman (1976). In relation to the school sample, adjustment cell weighting was employed to partition the school respondents into adjustment cells or weighting classes. Responding schools within each weighting class, which was the highest grade at the school, were weighted up in an attempt to compensate for the nonresponding schools within each weighting class. Sampling weight computations for public schools were based on a stratified random sampling design using proportional allocation to the strata. (For detailed explanation of sample weights see Appendix B.)

2.8 Survey Demographic Characteristics

Exhibit 2.2 presents demographic characteristics of the survey respondents. Because of the relatively small number of Hispanics/Latinos, American Indians/Alaska Natives, Asians, Native Hawaiians/Other Pacific Islanders, and Arab Americans/Chaldeans, these racial/ethnic categories were collapsed into one category in the remaining tables in this report.

Comparison of the unweighted and weighted percentages of students indicates that among public school students 6th graders were slightly under-represented in the study relative to their proportion in the population.

2.9 Data Analysis

This study focuses on several key areas designed to provide a comprehensive picture of substance abuse prevention need. A complete profile of the characteristics of adolescents in need of substance abuse prevention will allow the state to improve planning and target services more effectively.

2.9.1 Research Questions and Analytic Approach

Three basic research questions were pursued in this study.

1. What is the prevalence of alcohol, tobacco, and other drug use among Michigan's student population?

2. What is the prevalence of violent and delinquent behaviors among Michigan's student population?

3. What risk and protective factors are associated with substance use among Michigan students?

The analytic approach to answering these research questions was primarily descriptive and involved the computation and presentation of prevalence estimates (i.e., percentages and estimated numbers). Definitions and measures of substance use, violent and delinquent behaviors, and risk and protective factors are explained in the text where they are encountered.

Exhibit 2.2 Demographic Characteristics of the Michigan School Survey Public School Respondents: 2000/2001

Demographic Characteristic	Unweighted Number	Unweighted Percentage	Weighted Percentage
Total Michigan	8,912	100	100
Region			
Upper Peninsula	1,435	16.1	3.6
Northern	1,060	11.9	9.0
Western	1,142	12.8	20.7
Central	758	8.5	10.7
Eastern	968	10.9	12.5
Southeastern	1,999	22.4	36.0
Detroit	1,550	17.4	7.4
Race/Ethnicity			
Caucasian	6,318	70.9	74.2
African-American	1,739	19.5	13.7
Hispanic or Latino	402	4.5	5.6
American Indian/Alaska Native	125	1.4	2.4
Asian	152	1.7	1.4
Native Hawaiian/Other Pacific Islander	16	0.2	0.3
Arab American/Chaldean	46	0.5	1.0
Missing	114	1.3	1.5
Gender			
Male	4,235	47.6	48.4
Female	4,460	50.0	48.7
Missing	217	2.4	3.0
Grade in School			
6th	1,729	19.4	26.6
8th	2,578	28.9	26.5
10th	2,548	28.6	25.8
12th	2,057	23.1	21.1

Note: The weighted percentages in each category may not add to 100 because of rounding.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Separate prevalence estimates for use of the following substances were produced:

- alcohol (including binge use),
- marijuana,
- inhalants,
- cocaine,
- LSD or other psychedelics,
- speed or amphetamines,
- heroin,
- tranquilizers,
- barbiturates,
- designer drugs (Ecstacy, Ketamine, and GHB),
- steroids, and
- tobacco (including cigarettes and smokeless tobacco).

Data were used to develop prevalence estimates for the lifetime and past month periods (as available).

In addition, prevalence estimates of various violent and delinquent behaviors in the year prior to the survey were also developed. Estimates were produced for the following:

- attacking someone with the idea of seriously hurting them,
- carrying a handgun,
- getting drunk or high at school,
- getting suspended from school,
- stealing or trying to steal a motor vehicle,
- selling illegal drugs, and
- being arrested.

Prevalence estimates for public school students are presented in chapters 3 and 4 and were calculated for the state as a whole, by region, and demographic subgroups (i.e., gender, race/ethnicity, grade level). Chi-squared tests were used to test for significant differences between groups ($p<.05$). Such comparisons indicate which groups were more or less likely than others to use alcohol, tobacco, and other drugs. Confidence intervals were also provided; the 95 percent interval was used so that there is only a small probability that the given interval does not contain all of the respondent's answers.

Results on risk and protective factor analyses are presented in Chapter 5. Where possible, scale construction followed guidelines provided by the University of Washington's Social Development Research Group (SDRG) staff. Risk and protective factor scales were

constructed using Likert scaling practices. The response options of some items were recoded or reordered to provide a continuum from high to low appropriate for the scale. For risk scale items, a high value reflects an undesirable attitude or behavior. For protective scale items, a high value reflects a desirable attitude or behavior. Scale scores were computed by averaging responses to those items in the scale. A scale score was computed only if a student responded to a minimum of two thirds of the items on that scale. Valid (i.e., nonmissing) data were generally available for between 89 percent and 99 percent of all respondents (see Appendix A).

Tables are presented displaying the percentage of students considered at risk or resilient on each scale. Each risk and protective factor scale is calculated as the average of responses to questions in that scale, or the response if the scale included only one item (Exhibit 2.3). Students whose scores placed them above the numerical midpoint of the scale were considered "at risk" on a given risk factor or "resilient" on a given protective factor. For example, "low neighborhood attachment" is based on the average response to three statements ("I like my neighborhood," "If I had to move, I would miss the neighborhood I now live in, and "I would like to get out of my neighborhood"), and each of these questions was answered on a scale of 1 to 4. Thus, a student who scored above 2.5 (i.e., the midpoint) on this scale was considered "at risk." The percentages of public school youth at risk or resilient for the total and by gender, grade, and service area are also presented.

In addition, tables displaying the relationship between the risk and protective factors and the measures of substance use (i.e., alcohol and illicit drug use) using logistical regression are also presented. All variables are entered into the models as dichotomous variables (i.e., yes/no). The substance use variables were dichotomized to indicate whether a youth reported recent substance use (i.e., in the past month). The risk and protective factor scales were dichotomized into whether a youth was above or below the midpoint of the scale.

The statistic produced from logistic regression analysis is an odds ratio (OR), which reflects the likelihood of a positive response relative to that for a defined reference group. ORs greater than 1.0 indicate an increased likelihood relative to the reference group, and ORs of less than 1.0 indicate a decreased likelihood. For example, in the public school sample, the OR for the relationship between "laws and norms favorable toward substance use" and use of alcohol in the past month was 5.7. This indicates that students who were at risk on the factor of community disorganization were approximately six times as likely to indicate past month alcohol use than students who were not at risk on this factor. Because all analyses are based on cross-sectional correlations, however, it is important to bear in mind that direct causal linkages between the health risk behaviors and the risk and protective factors cannot be established and should not be inferred. In other words, whether students use substances because they perceive them as being available or if they perceive substances as available because they use them cannot be determined.

Exhibit 2.3 Risk and Protective Factor Scales and Variables Used to Create the Scales for the Michigan Student Survey

Scale Name/Description	Questionnaire Items
Community	
• **Low neighborhood attachment.** This scale describes the extent to which students feel a part of their neighborhood (whether they feel that what they do makes a difference).	95, 97, 107
• **Community disorganization**. This scale describes students' perceptions of the extent to which people in the community take part in decisions or processes that affect their lives.	99a-d, 105
• **Personal transitions and mobility**. This scale describes the extent to which students have changed homes or schools.	101, 104, 106, 108
• **Community transitions and mobility**. This scale describes the extent to which students feel that people move in and out of their neighborhood.	100
• **Norms and norms favorable toward drug use**. This scale describes students' perceptions of community norms regarding substance use and students' perceptions of community policies regarding substance use and other problem behaviors.	93[a-c], 94[a-d], 86, 88, 90, 92
• **Perceived availability of drugs**. This scale describes students' perceptions of availability or access to alcohol, drugs, or firearms.	84, 85, 87, 89, 91
• **Opportunities for conventional involvement**. This scale describes students' perceptions of the extent of opportunities to participate in community activities.	98, 103[a-e]
• **Rewards for conventional involvement**. This scale describes students' perceptions of the extent of rewards for positive participation in community activities.	96, 102, 109
School	
• **Academic failure**. This scale describes students' academic achievement (i.e., grades in school, perception of their own grades compared to those of others).	13, 23
• **Little commitment to school**. This scale describes the extent to which students felt that school was important and meaningful.	25, 26, 27, 28[a-c], 14[a-c]
• **Opportunities for positive involvement**. This scale describes students' perceptions of the extent to which they had opportunities to participate in school activities.	15, 16, 18, 19, 24
• **Rewards for conventional involvement**. This scale describes students' perceptions of the extent to which they were rewarded for positive participation in school activities.	17, 20, 21, 22
Family	
• **Poor family management**. This scale describes students' perceptions of the extent of parental oversight and rule-making.	111, 112, 113, 115, 124, 125
• **Poor discipline**. This scale describes students' perceptions of whether they would be caught by parents if they behaved inappropriately.	114, 116, 117
• **Parental attitudes favorable toward drug use**. This scale describes students' perceptions of the extent to which parents approve of their children's substance use.	110[a-c]
• **Parental attitudes favorable toward antisocial behavior**. This scale describes students' perceptions of the extent to which parents approve of their children's antisocial behaviors.	110[d-f]

Exhibit 2.3 (continued)

Scale Name/Description	Questionnaire Items
• **Attachment**. This scale describes enjoyment of time spent with parents.	120, 121
• **Opportunities for positive involvement**. This scale describes students' perceptions of the extent to which they have opportunities to participate in family activities.	119, 123, 122
• **Rewards for conventional involvement**. This scale describes students' perceptions of the extent to which they are rewarded by their family for positive activities.	118, 126
Peer-Individual	
• **Rebelliousness**. This scale describes the extent of rebelliousness (e.g., ignoring rules).	32, 35, 47
• **Early initiation of problem behavior**. This scale describes the extent to which students began using substances and participating in problem behaviors at an early age.	30[a-I]
• **Impulsiveness**. This scale describes the extent of impulsiveness (e.g., not thinking before acting, switching from one activity to another).	48, 49, 50, 51
• **Antisocial behavior**. This scale describes the extent to which students have been involved in antisocial behaviors, such as being suspended from school, stealing, or fighting.	38, 39, 40[h]
• **Attitudes favorable toward antisocial behavior**. This scale describes the extent to which students believed that participating in antisocial behaviors was acceptable.	31[a-e]
• **Attitudes favorable toward drug use**. This scale describes the extent to which students believed that using substances was acceptable.	31[f-i]
• **Perceived risks of drug use**. This scale describes students' perceptions of the risks associated with substance use.	52[a-d]
• **Interaction with antisocial peers**. This scale describes students' perceptions of the extent to which their friends participated in antisocial behaviors.	29[e-k]
• **Friends' substance use**. This scale describes students' perceptions of the extent to which their friends used alcohol or drugs.	29[a-d]
• **Sensation seeking**. This scale describes the extent to which students did things on a dare or did things that were dangerous.	37[a-c]
• **Rewards for antisocial involvement**. This scale describes students' perceptions of the extent to which they were rewarded by their peers for participating in antisocial behaviors.	41[a-d]
• **Social skills**. This scale describes the extent to which students displayed social skills (e.g., being able to say "no" to friends, listening to parents).	42, 43, 44, 45
• **Belief in the moral order**. This scale describes the extent to which students believed in moral order (e.g., telling the truth even if it got them in trouble, thinking that cheating is OK).	33, 34, 36, 46

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

In addition, research has shown that the greater the number of risk factors present, the greater the risk of drug abuse (e.g., Bergeson, Kelly, Fitch, & Mueller, 1998; Bry, McKeon, & Pandina, 1982; Newcomb, Maddahian, Skager, & Bentler, 1987; Werner & Smith, 1992). The opposite is true for protective factors; the greater the number of protective factors, the lower the risk of drug abuse. Therefore, the number of risk and protective factors by recent use of alcohol, tobacco, and illicit drugs are displayed.

2.9.2 Analysis Software and Estimation Procedures

Appropriate analysis of the school survey data required special software programs that account for the complexities of the survey design. Most software packages, including SAS and SPSS, assume that the individuals have been selected by simple random sampling. Moreover, most software packages do not contain procedures for properly estimating the variance of survey statistics (e.g., means, totals, proportions, regression coefficients) obtained from a complex sample survey. Contrary to common belief, the use of SAS, SPSS, or most other weighting procedures does not adequately compensate for either the sample design factors or for means, proportions, or more sophisticated analyses, such as multiple regression.

The SUrvey DAta ANalysis (SUDAAN) software system, which was designed and developed by RTI, is one of the most powerful and efficient systems of its kind (Shah, Barnwell, & Bieler, 1998). For this study, SUDAAN was used to analyze the school survey data. SUDAAN is unique in its ability to handle many different complex sample designs, and all SUDAAN procedures allow users to save output files for efficient computer production of report tables.

Any estimates that were considered to be unreliable are not presented in this report. Specifically, estimates were suppressed that could not be reported with confidence because they either were based on small sample sizes ($n<30$) or had large sampling errors. The rules for classifying estimates as unreliable are explained in Appendix B. Unreliable estimates and very small estimates (i.e., <0.05 percent) that were omitted are noted by a single plus sign (+) in the tables.

2.10 Limitations of the Data

The Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey is a large and extremely useful survey for the people of Michigan. It is an excellent source of data appropriate for assessing substance abuse and prevention needs among Michigan students. However, some limitations with this data source should be noted.

One limitation of this study is its exclusive focus on adolescents in school; adolescent subpopulations with concentrated numbers of problem users—such as school dropouts, homeless and runaway youth, and youth who have been incarcerated or institutionalized—are likely to be undercounted. Note that Michigan conducted a survey of adolescents in households in the spring of 1998 (Aktan & Calkins, 2000). This data collection may have included some adolescents that would be missed in a school survey, in particular, school dropouts.

School dropouts constitute the subpopulation of most concern not captured by school-based surveys. There has been some controversy surrounding the belief that dropouts have the greatest drug problems, but most of the research to date has found that dropouts are more likely to be substance users than those who remain in school. Mensch and Kandel (1988) found that dropouts were more likely than graduates to use cigarettes and illicit drugs. An unpublished analysis of the adolescent subsample of the 1991 National Household Survey on Drug Abuse (NHSDA) also showed that 16- and 17-year-old dropouts were significantly more likely than those currently enrolled to use alcohol, cigarettes, marijuana, cocaine, and any illicit drugs (including marijuana and cocaine). Published studies have also shown that drug use often precedes dropping out of school (Friedman, Glickman, & Utada, 1985; Mensch & Kandel, 1988), but drug use has not been proven to be a definitive *cause* of dropping out of school. Nevertheless, it is reasonable to assume that some of the problem users who are *at risk* for dropping out but have not yet done so will be captured in this survey; results, however, can be generalized only to the population of adolescents who are attending school.

Finally, note that the questionnaire measures self-reported behavior. Caution should be exercised in interpreting these data because of respondents' tendencies to underreport undesirable behaviors and to have difficulty remembering complicated information such as age at first use (Bailey, Flewelling, & Rachal, 1992b). However, several researchers have concluded that adolescents' self-reports of substance use are reliable and valid (Akers, Massey, Clarke, & Lauer, 1983; Martin & Newman, 1988; Nurco, 1985; Single, Kandel, & Johnson, 1975; Smart, 1975; Whitehead & Smart, 1972).

3. PREVALENCE OF TOBACCO, ALCOHOL, AND ILLICIT DRUG USE AMONG MICHIGAN PUBLIC SCHOOL STUDENTS

This chapter presents data about the use of tobacco, alcohol, and other drugs among 6th, 8th, 10th, and 12th grade public school students in Michigan. To determine the characteristics of students who were using alcohol, tobacco, and other drugs, this report looks at each of the prevalence categories separately by gender, race/ethnicity, age, and grade in school. Additional tables displaying prevalence rates by grade within gender categories can be found in Appendix A.

3.1 Tobacco

3.1.1 Lifetime Tobacco Use

As shown in Exhibit 3.1, about 41 percent of Michigan public school students had ever used tobacco (i.e., either cigarettes or smokeless tobacco); this estimate translates to 194,800 tobacco users in the lifetime. The highest rates of lifetime tobacco use were reported in the Northern and Upper Peninsula regions (51 percent and 50 percent, respectively) and the lowest in the Southeastern region and Detroit (36 percent and 35 percent, respectively). There was little difference in rates of lifetime use by gender; however, lifetime use was higher among Caucasian students than among African-American and Other race/ethnicity students. Prevalence rates increased noticeably by grade. The largest difference in use occurred between the 6th and 8th grades, where three times as many 8th graders reported lifetime use (38 percent compared with 13 percent).

The higher rates of lifetime use among older students may reflect a longer opportunity to have tried cigarettes. In addition, readers are cautioned that any cigarette use qualified as lifetime use, even if the student took only one or two puffs. Consequently, the 41 percent of Michigan public school students who had ever tried tobacco includes students who tried cigarettes but did not progress to regular cigarette smoking, as well as those who do smoke regularly. Nevertheless, this rate of lifetime tobacco use suggests that many Michigan public school students have had access to tobacco products, despite the illegality of tobacco sales to students under the age of 18.

3.1.2 Past Month Tobacco Use

Nearly one fifth (19 percent) of Michigan's public school students used tobacco in the month prior to the survey (i.e., they were current tobacco users) (Exhibit 3.1). This estimate of 90,400 past month users constitutes nearly one half of the 194,800 lifetime users (i.e., [90,400/194,800] x 100 = 46 percent); therefore, nearly one half of those who had ever used tobacco were current users. As with lifetime use, the highest rates of past month tobacco use

Exhibit 3.1 Prevalence of Use and Estimated Numbers of Tobacco Users in the Lifetime and Past Month Among Michigan Public School Students, by Selected Demographic Characteristics: 2000/2001

	Lifetime			Past Month		
Demographic Characteristic	**Percentage**	**Number**	**95% CI**	**Percentage**	**Number**	**95% CI**
Total	41.4	194,800	189,400 – 200,300	19.2	90,400	86,200 – 94,800
Region						
Upper Peninsula	49.5	8,600	8,200 – 9,100	23.7	4,100	3,800 – 4,500
Northern	51.0	21,700	20,400 – 23,000	23.4	9,900	8,800 – 11,200
Western	48.0	46,500	43,200 – 49,900	21.4	20,700	18,500 – 23,100
Central	41.6	21,200	19,400 – 23,000	17.1	8,700	7,400 – 10,100
Eastern	40.8	24,200	22,300 – 26,000	19.3	11,500	10,000 – 13,100
Southeastern	35.9	61,000	57,400 – 64,600	19.4	32,800	30,000 – 35,900
Detroit	34.9	11,800	10,700 – 12,800	8.0	2,700	2,200 – 3,300
Gender						
Male	41.2	93,700	89,600 – 97,800	19.7	44,600	41,500 – 47,900
Female	41.9	96,600	92,600 – 100,700	18.8	43,500	40,500 – 46,700
Race/Ethnicity						
Caucasian	43.4*	153,400	148,800 – 158,000	21.4*	75,600	71,700 – 79,500
African-American	35.4	22,000	19,800 – 24,400	9.8	6,100	5,000 – 7,400
Other races[1]	34.2	16,900	14,900 – 19,100	15.5	7,700	6,300 – 9,300
Grade in School						
6th	12.6*	15,500	12,900 – 18,700	2.3*	2,800	1,800 – 4,400
8th	38.0	47,700	45,100 – 50,300	14.0	17,500	15,800 – 19,400
10th	54.6	66,500	63,700 – 69,300	27.6	33,500	31,100 – 36,200
12th	65.1	65,100	62,500 – 67,600	36.5	36,500	33,900 – 39,200

Note: Estimated number rounded to the nearest hundred. The 95% CI= 95% confidence interval (to the nearest hundred) of the estimated number of users. Unweighted numbers of respondents are shown in Exhibit 2.2.

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, or Arab Americans or Chaldeans.

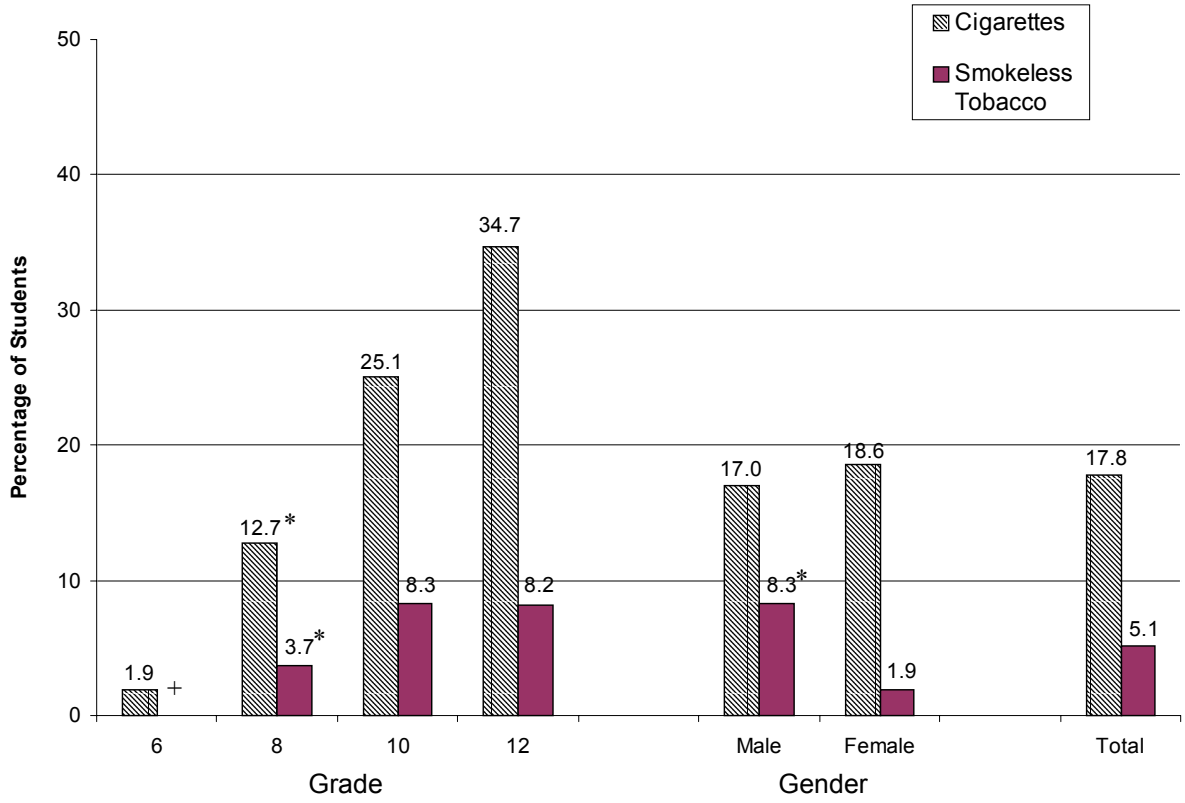
*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

were reported in the Upper Peninsula (24 percent) and Northern (23 percent) regions; the lowest rates were reported in Detroit (8 percent). Again, there was little difference in current use between the genders, but Caucasians were more likely to report past month tobacco use than were African-American and Other race/ethnicity students. As with lifetime use, rates of current tobacco use increased by grade categories. For example, 2 percent of the students in the 6th grade, 14 percent of students in the 8th grade, 28 percent of those in the 10th grade, and 37 percent of those in 12th grade had used tobacco in the past month.

Exhibit 3.2 shows the prevalence of past month tobacco use broken down by type of tobacco (i.e., cigarettes or smokeless tobacco). Approximately 18 percent of students reported smoking cigarettes in the past month, and 5 percent reported using smokeless tobacco. For both types of tobacco, use generally increased with grade. Although there was little difference in past month cigarette use between the two genders, past month use of smokeless tobacco was significantly higher among males (8 percent) than females (2 percent).

Exhibit 3.2 Prevalence of Cigarette and Smokeless Tobacco Use in the Past Month Among Michigan Public School Students, by Grade and Gender: 2000/2001



+Data suppressed due to low prevalence.

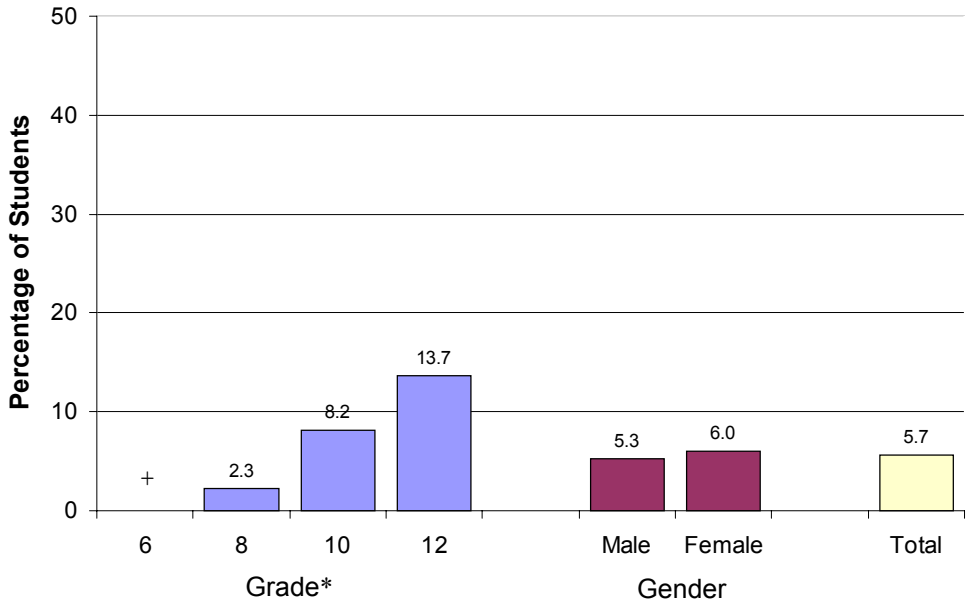
*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

3.1.3 Heavy Smoking

Exhibit 3.3 displays the prevalence of smoking more than five cigarettes per day, by grade and gender. A total of 6 percent of Michigan public school students reported heavy smoking. As with lifetime and past month smoking, the rate of smoking more than five cigarettes per day increased by grade category. Less than 1 percent of 6th graders were heavy smokers, whereas 2 percent of 8th graders, 8 percent of 10th graders, and 14 percent of 12th graders reported heavy use. Overall, males and females reported comparable rates of heavy smoking (5 percent and 6 percent, respectively).

Exhibit 3.3 Prevalence of Smoking More than 5 Cigarettes Per Day Among Michigan Public School Students, by Grade and Gender: 2000/2001



+Data suppressed due to low prevalence.

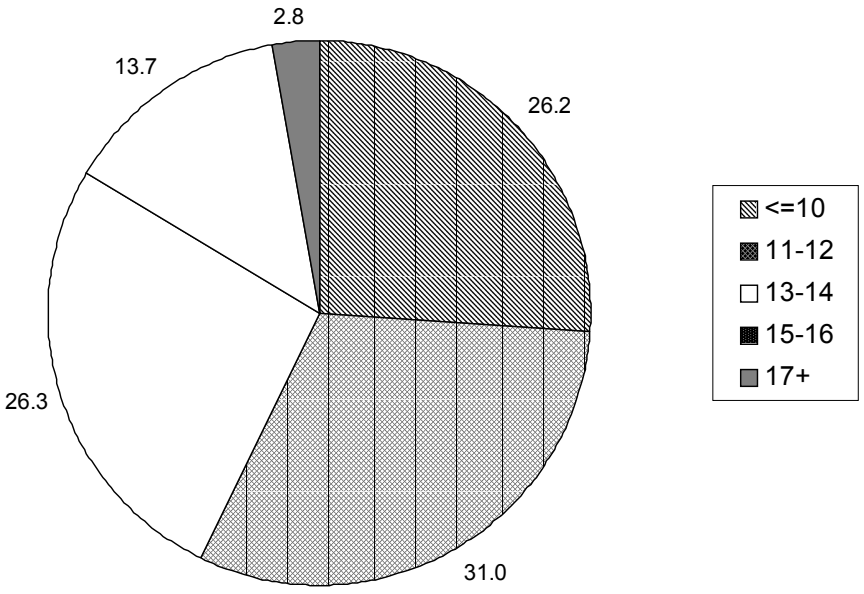
*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

3.1.4 Age at First Use

Among students who had ever smoked cigarettes, roughly equal percentages reported that their first use occurred between the ages of 11 and 12, 13 and 14, and 10 or younger (Exhibit 3.4).

Exhibit 3.4 Age at First Use Among Michigan Public School Students Who Reported Ever Smoking Cigarettes: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

3.2 Alcohol

3.2.1 Lifetime Alcohol Use

Exhibit 3.5 shows that approximately five out of 10 Michigan public school students had ever had a drink of alcohol, beyond just a few sips, in their life (lifetime use); this estimate translates to about 252,100 alcohol users among the Michigan public school student population up to this point in their lifetime. The highest rates of lifetime alcohol use were reported in the Northern region (61 percent) and the lowest in Detroit (47 percent). There was no difference in lifetime alcohol use by gender. However, Caucasian students (57 percent) were more likely to report such use than African-American or Other race/ethnicity students (46 percent).

Exhibit 3.5 Prevalence of Alcohol Use and Estimated Numbers of Users in the Lifetime and Past Month Among Michigan Public School Students, by Selected Demographic Characteristics: 2000/2001

	Lifetime			Past Month		
Demographic Characteristic	**Percentage**	**Number**	**95% CI**	**Percentage**	**Number**	**95% CI**
Total	54.4	252,100	246,600 – 257,600	31.0	145,000	140,100 – 150,000
Region						
Upper Peninsula	58.4	10,000	9,600 – 10,500	36.5	6,300	5,900 – 6,800
Northern	61.0	25,400	24,100 – 26,600	35.4	14,800	13,600 – 16,100
Western	56.2	53,800	50,400 – 57,100	30.4	29,300	26,700 – 32,000
Central	51.9	26,100	24,300 – 27,900	25.4	12,900	11,400 – 14,500
Eastern	57.1	33,200	31,300 – 35,000	36.2	21,200	19,400 – 23,000
Southeastern	52.6	88,300	84,600 – 92,000	31.2	53,100	49,600 – 56,600
Detroit	47.2	15,300	14,200 – 16,400	22.6	7,400	6,600 – 8,300
Gender						
Male	54.6	121,800	117,500 – 126,000	31.3	70,500	66,800 – 74,200
Female	54.4	124,000	120,000 – 128,100	30.7	70,800	67,100 – 74,500
Race/Ethnicity						
Caucasian	57.3*	200,000	195,400 – 204,600	33.9*	119,400	115,000 – 123,900
African-American	45.8	27,400	25,000 – 29,900	20.6	12,600	10,900 – 14,400
Other races[1]	46.3	22,800	20,600 – 25,200	24.5	12,200	10,400 – 14,100
Grade in School						
6th	19.3*	23,300	20,100 – 26,800	5.7*	6,900	5,200 – 9,100
8th	50.6	62,100	59,400 – 64,800	25.0	31,200	28,900 – 33,500
10th	71.5	86,400	83,800 – 88,800	43.6	52,900	50,200 – 55,700
12th	80.9	80,400	78,200 – 82,400	54.1	54,000	51,300 – 56,600

Note: Estimated number rounded to the nearest hundred. The 95% CI= 95% confidence interval (to the nearest hundred) of the estimated number of users. Unweighted numbers of respondents are shown in Exhibit 2.2.

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, or Arab Americans or Chaldeans.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

As would be expected, prevalence of lifetime alcohol use increased by grade. The largest increase was in use levels between the 6th and 8th grades (19 percent and 51 percent, respectively), which then increased nearly as much between 8th and 10th grades (51 percent and 72 percent). The higher rates of lifetime alcohol use with increased age may reflect increased opportunities for older students to try alcohol. Nevertheless, the rates by grade level suggest that more than 80 percent of Michigan students will have tried alcohol by the time they finish the 12th grade.

3.2.2 Past Month Alcohol Use

As shown in Exhibit 3.5, approximately one third (or 145,000) of public school students had consumed at least one drink in the month prior to the 2000/2001 survey (i.e., currently used alcohol). This estimated number of past month alcohol users constitutes about 58 percent of the 252,100 lifetime alcohol users; stated another way, approximately 58 percent of the lifetime alcohol users reported use in the past month.

Students in the Upper Peninsula (37 percent) and Eastern (36 percent) regions reported the highest rates of past month alcohol use, and students in Detroit reported the lowest rates (23 percent). There was no difference in past month alcohol use by gender. Caucasian students were more likely to report such use than were African-American and Other race/ethnicity students (34 percent compared with 21 percent and 25 percent, respectively). As in lifetime use, rates for current use also increased progressively by grade. Notably, more than half of the students in the 12th grade reported drinking alcohol in the past month.

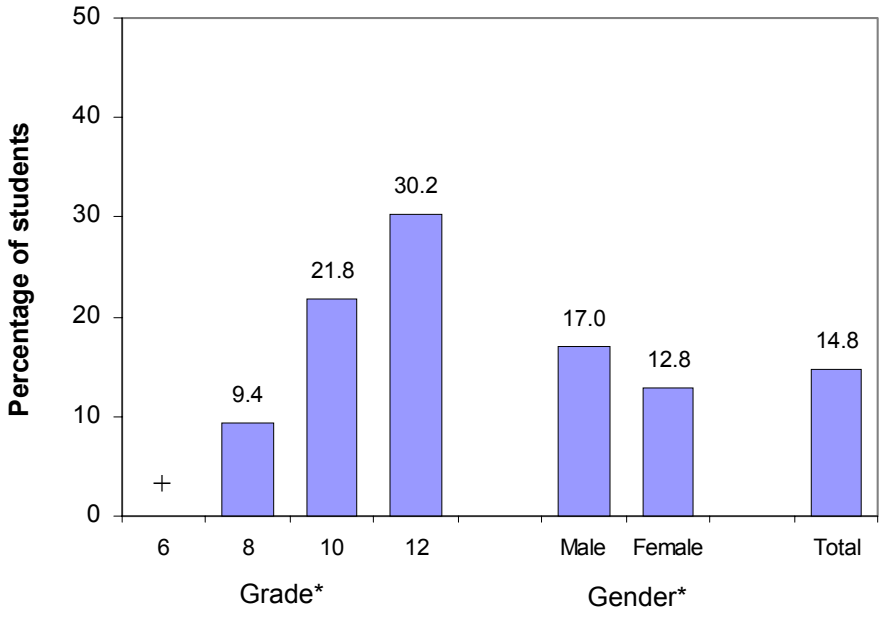
3.2.3 Binge Drinking

Exhibit 3.6 presents the prevalence of binge drinking (i.e., consuming five or more drinks of alcohol in a row) among Michigan public school students during the two-week period before the survey. As shown, an estimated 15 percent of students met the definition of binge drinking in the preceding two weeks. Males were more likely than females to report binge alcohol use (17 percent and 13 percent, respectively). As students' grade increased, so did their rates of binge drinking. Less than 1 percent of students in grade 6 reported binge drinking in the past two weeks, compared with 9 percent of 8th graders, 22 percent of 10th graders, and 30 percent of 12th graders.

3.2.4 Age at First Use

Among students who reported ever drinking alcohol, nearly one third reported that their first use occurred between the ages of 13 and 14 (Exhibit 3.7).

Exhibit 3.6 Prevalence of Binge Drinking in the Past 2 Weeks Among Michigan Public School Students, by Grade and Gender: 2000/2001



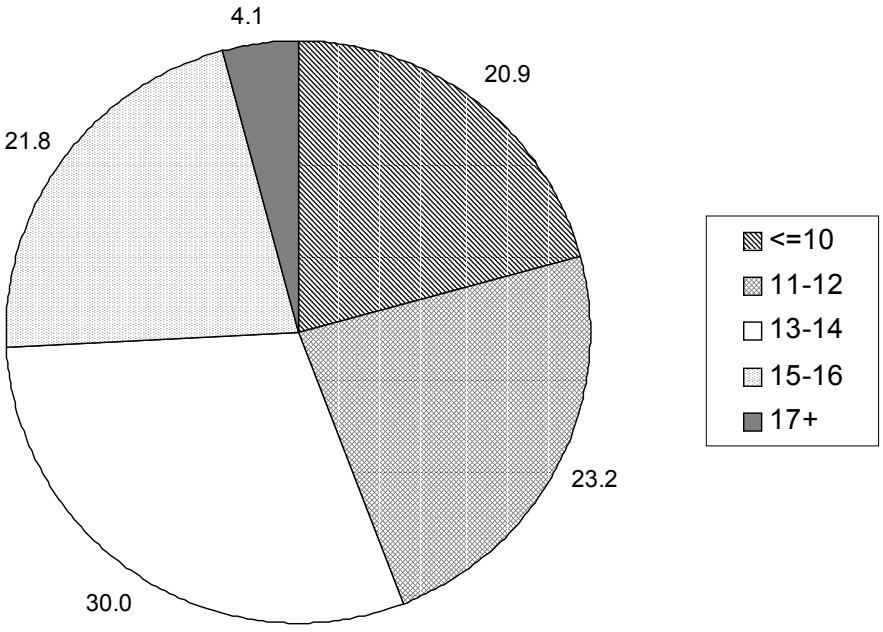
Note: Binge drinking is defined as consuming 5 or more drinks of alcohol in a row.

[+]Data suppressed due to low prevalence.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

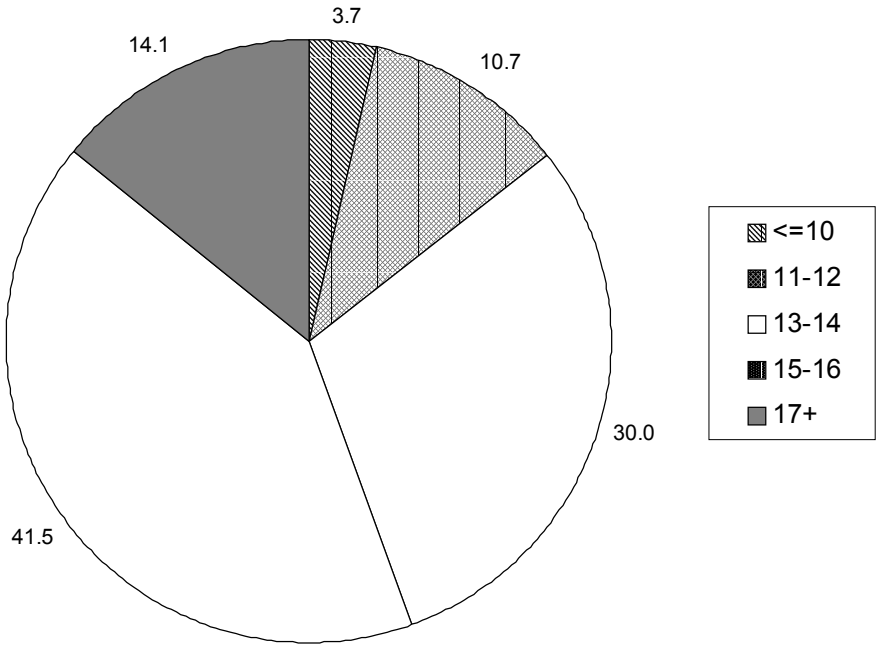
Exhibit 3.7 Age at First Use Among Michigan Public School Students Who Reported Ever Drinking Alcohol: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Among students who reported ever drinking regularly (i.e., at least once or twice a month), the largest group reported first using at this level between the ages of 15 and 16 (Exhibit 3.8).

Exhibit 3.8 Age at First Regular Use Among Michigan Public School Students Who Reported Ever Drinking Alcohol Regularly: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

3.3 Other Drugs

3.3.1 Lifetime Other Drug Use

Approximately a third of Michigan public school students reported having used at least one other drug at least once in their lifetime (Exhibit 3.9); this estimate translates to approximately 150,200 students. The highest rates of lifetime other drug use were reported in the Northern region (37 percent), and the lowest were reported in Detroit (29 percent). Males were more likely to report lifetime other drug use than females (35 percent vs. 32 percent, respectively). Caucasian students were more likely to report such use than were students in the Other racial/ethnic category (34 percent vs. 30 percent, respectively); however, Caucasian and African-American students reported similar rates (34 percent and 32 percent, respectively). Percentages of students reporting use increased with grade. Lifetime use of other drugs nearly tripled between grades 6 and 8 (11 percent and 30 percent) and increased significantly between grades 8 and 10 (30 percent and 43 percent). Notably, more than half of those in grade 12 (52 percent) reported having used an illicit drug in their lifetime.

Exhibit 3.9 Prevalence of Other Drug Use and Estimated Numbers of Users in the Lifetime and Past Month Among Michigan Public School Students, by Selected Demographic Characteristics: 2000/2001

	Lifetime			Past Month		
Demographic Characteristic	**Percentage**	**Number**	**95% CI**	**Percentage**	**Number**	**95% CI**
Total	33.3	150,200	144,900 – 155,500	17.2	76,700	72,700 – 80,900
Region						
Upper Peninsula	33.1	5,600	5,200 – 6,100	19.0	3,200	2,900 – 3,600
Northern	37.0	15,100	13,900 – 16,400	19.0	7,600	6,600 – 8,800
Western	35.8	32,700	29,900 – 35,700	17.4	15,500	13,600 – 17,600
Central	33.1	16,400	14,700 – 18,100	16.2	8,000	6,800 – 9,400
Eastern	32.7	18,500	16,700 – 20,200	17.9	10,100	8,700 – 11,600
Southeastern	32.1	53,000	49,600 – 56,500	17.4	28,600	25,900 – 31,500
Detroit	29.2	8,900	8,000 – 9,800	12.6	3,800	3,200 – 4,500
Gender						
Male	35.2*	75,900	72,100 – 79,800	18.5*	39,600	36,700 – 42,600
Female	31.6	70,700	67,000 – 74,500	16.0	35,200	32,400 – 38,200
Race/Ethnicity						
Caucasian	34.1*	116,700	112,200 – 121,300	17.8	60,500	56,900 – 64,300
African-American	32.2	18,200	16,200 – 20,300	15.3	8,400	7,100 – 9,800
Other races[1]	29.5	13,900	12,000 – 15,900	15.9	7,400	6,100 – 8,900
Grade in School						
6th	10.7*	12,100	9,700 – 14,900	3.2*	3,600	2,500 – 5,100
8th	30.2	36,600	34,300 – 39,100	15.5	18,500	16,700 – 20,500
10th	42.7	50,700	47,900 – 53,400	24.7	29,100	26,800 – 31,600
12th	51.7	50,800	48,100 – 53,500	26.1	25,500	23,200 – 27,900

Notes: "Other drug use" includes use of marijuana, inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy, or Ketamine), or steroids.
Estimated number rounded to the nearest hundred. The 95% CI= 95% confidence interval (to the nearest hundred) of the estimated number of users. Unweighted numbers of respondents are shown in Exhibit 2.2.

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, or Arab Americans or Chaldeans.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

The most frequently used illicit drug in the lifetime was marijuana (24 percent), followed by inhalants (14 percent), designer drugs (5 percent), speed or amphetamines (5 percent), LSD or other psychedelics (5 percent), tranquilizers (5 percent), cocaine (3 percent), barbiturates (3 percent), steroids (1 percent), and heroin (1 percent) (Exhibit 3.10).

3.3.2 Past Month Other Drug Use

Approximately 17 percent (or 76,700) of Michigan's public school students reported using an illicit drug in the month prior to the survey (Exhibit 3.9). This estimated number of past month illicit drug users constituted about 51 percent of the 150,200 lifetime users; stated differently, approximately 51 percent of the lifetime illicit drug users reported use in the past month.

The highest rates were reported in the Northern and Upper Peninsula regions (19 percent) and the lowest in Detroit (13 percent). Males were slightly more likely to report past-month use than females (19 percent vs. 16 percent, respectively). There was little difference by race/ethnicity. Again percentages of students reporting use increased with grade. Approximately 3 percent of 6th graders, 16 percent of 8th graders, 25 percent of 10th graders, and 26 percent of 12th graders reported using an illicit drug in the month preceding the survey.

In the 30 days prior to the 2000/2001 survey, 13 percent of the Michigan public school students reported using marijuana, 4 percent reported using inhalants, 2 percent reported using LSD or other psychedelics, 2 percent reported using designer drugs, 2 percent reported using speed or amphetamines, and 2 percent reported using tranquilizers; 1 percent or less reported using cocaine, heroin, and steroids (Exhibit 3.10).

3.3.3 Age at First Marijuana Use

Among students who reported ever using marijuana, nearly two fifths reported first using between the ages of 13 and 14 (Exhibit 3.11).

3.4 Combinations of Substances Used

Exhibit 3.12 displays combinations of substances used in the lifetime and past month. This exhibit shows that use of tobacco and alcohol were highly related to use of marijuana and other illicit drugs. Almost all of the youth who had ever used marijuana and other illicit drugs had also used cigarettes or alcohol at some time in their lives. For example, of those who had ever used marijuana, 91 percent reported having ever used cigarettes, and 97 percent reported having ever used alcohol.

Exhibit 3.10 Prevalence of Other Drug Use and Estimated Numbers of Users in the Lifetime and Past Month Among Michigan Public School Students: 2000/2001

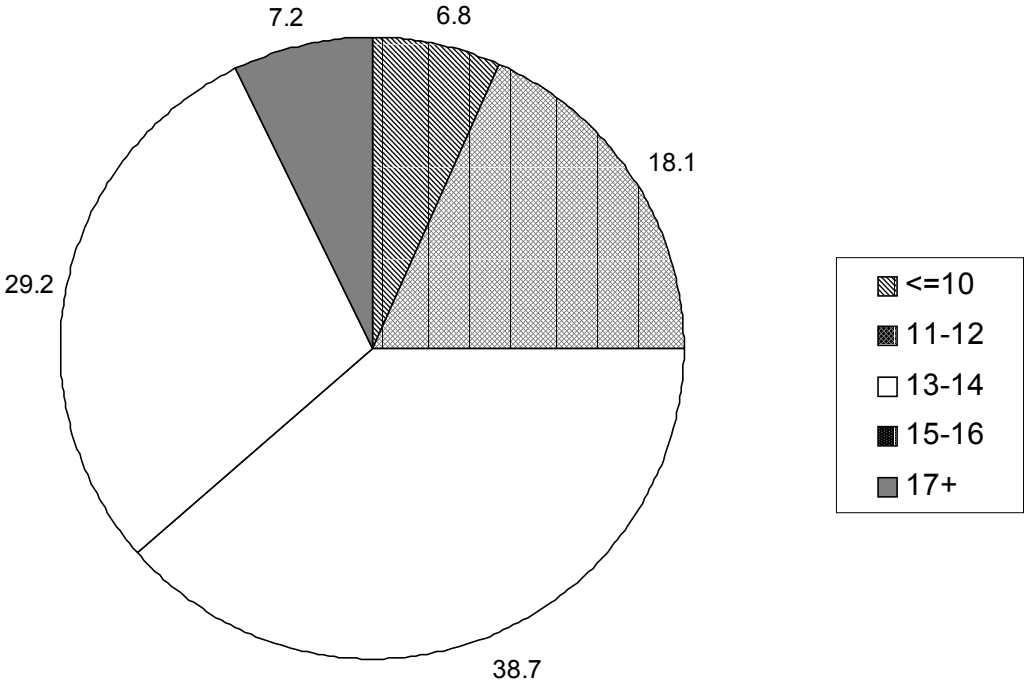
	Lifetime			Past Month		
Substance Used	**Percentage**	**Number**	**95% CI**	**Percentage**	**Number**	**95% CI**
Marijuana	24.0	111,700	107,200 – 116,200	12.6	58,400	54,900 – 62,200
Inhalants	13.6	62,700	58,700 – 67,000	3.9	18,100	16,000 – 20,500
Cocaine	3.3	15,600	13,700 – 17,700	1.1	5,200	4,200 – 6,600
LSD or other psychedelics	4.9	23,000	20,600 – 25,500	2.4	11,100	9,500 – 12,900
Speed or amphetamines	4.9	22,300	20,100 – 24,700	1.7	7,900	6,700 – 9,500
Heroin	0.9	4,000	3,100 – 5,200	0.3	1,500	1,000 – 2,300
Tranquilizers	4.7	21,700	19,400 – 24,300	2.0	9,100	7,700 – 10,900
Barbiturates	2.7	12,300	10,600 – 14,300	1.2	5,600	4,400 – 7,000
Designer drugs[1]	5.0	22,700	20,300 – 25,400	1.8	8,100	6,800 – 9,800
Steroids	1.4	6,400	5,200 – 7,800	0.7	3,300	2,500 – 4,400

Note: Estimated number rounded to the nearest hundred. The 95% CI= 95% confidence interval (to the nearest hundred) of the estimated number of users.

[1]Includes GHB, Ecstacy (X), or ketamine (Special K).

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey

Exhibit 3.11 Age at First Use Among Michigan Public School Students Who Reported Ever Using Marijuana: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 3.12 Combinations of Substances Used in the Lifetime and Past Month Among Michigan Public School Students: 2000/2001

	Lifetime Use				Past Month Use			
	Cigarettes	Alcohol	Marijuana	Other Illicit Drugs	Cigarettes	Alcohol	Marijuana	Other Illicit Drugs[1]
Cigarettes	100.0	88.3	54.3	59.8	100.0	80.6	49.9	69.5
Alcohol	65.6	100.0	43.0	65.7	46.1	100.0	34.3	77.4
Marijuana	90.9	97.0	100.0	47.6	69.9	84.4	100.0	60.0
Other Illicit Drugs	31.0	46.1	14.8	100.0	13.8	26.8	8.4	100.0

[1]Includes inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

3.5 Substance Use and Student Perceptions

3.5.1 Perceptions of Peer Substance Use

In addition to being asked about their own substance use, students were also asked how many of their close friends used substances in the past year. Exhibit 3.13 shows that the majority of students reported having no close friends who used marijuana or other drugs, and about half reported having no close friends who used cigarettes or alcohol. The number of friends reported tended to be skewed to the upper and lower ends of the variables. Specifically, students either reported one friend who used substances or four friends who used.

Exhibit 3.13 Number of Close Friends Who Used Substances in the Past Year Among Michigan Public School Students: 2000/2001

	1 Friend	2 Friends	3 Friends	4 Friends	None
Cigarettes	13.7	11.4	6.9	13.6	54.5
Alcohol	12.2	9.5	8.9	24.9	44.5
Marijuana	11.1	8.0	5.7	11.5	63.8
Other Illegal Drugs	6.0	2.6	1.3	2.6	87.5

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 3.14 displays students perceptions of risk and peer acceptance of substance use. Youth who thought there was a very or pretty good chance of being seen as "cool" for using substances were much more likely to report use. For example, 61% of the youth who thought there was a very or pretty good chance of being seen as cool if they smoked cigarettes, actually reported having ever smoked, compared with 39 percent of the students who thought there was some, little, or no chance of being seen as "cool" for this behavior.

In addition, students who believed that substances cause little harm were more likely to report use. For example, only 11 percent of the students who thought people were at great risk from using marijuana had ever used marijuana, compared with 46 percent of students who thought people were at moderate risk, and 58 percent of students who thought people were at slight or no risk for such use.

3.5.2 Perceptions of Adult Opinions and Behaviors

Parental attitudes toward substance use were strongly related to youth substance use (Exhibit 3.15). For example, 75 percent of the students who said that their parents felt it was not wrong at all for them to smoke cigarettes had actually smoked in the past month, compared

Exhibit 3.14 Prevalence of Lifetime and Past Month Use of Cigarettes, Alcohol, and Marijuana Among Michigan Public School Students, by Peer Perception of Use and Perceived Risk: 2000/2001

		Lifetime Use			Past Month Use		
	N	Cigarettes	Alcohol	Marijuana	Cigarettes	Alcohol	Marijuana
What are the chances you would be seen as cool if you:							
Smoked cigarettes?							
Very or pretty good chance	625	60.6*	72.7*	37.9*	39.0*	45.2*	23.6*
Some, little, or no chance	8,001	38.9	53.3	22.9	16.1	29.8	11.6
Drank alcohol regularly? [1]							
Very or pretty good chance	1,198	60.1*	77.8*	39.4*	31.2*	52.4*	22.1*
Some, little, or no chance	7,419	37.3	51.0	21.4	15.6	27.5	10.9
Smoked marijuana?							
Very or pretty good chance	1,043	63.9*	78.1*	50.7*	33.4*	50.6*	32.6*
Some, little, or no chance	7,585	37.5	51.8	20.6	15.8	28.6	9.9
How much do you think people risk harming themselves (physically or in other ways) if they:							
Smoke cigarettes?							
Great risk	5,809	34.9*	50.8*	20.2*	12.6*	26.3*	9.8*
Moderate risk	1,867	56.5	67.7	34.2	30.9	43.8	18.2
Slight or no risk	885	45.4	54.2	30.3	26.3	37.2	20.1
Drink alcohol regularly? [2]							
Great risk	3,695	29.6*	41.5*	16.1*	10.7*	18.5*	7.4*
Moderate risk	2,656	45.5	61.0	26.6	19.9	35.7	13.1
Slight or no risk	2,184	52.9	69.8	35.0	27.9	47.5	21.2
Smoke marijuana regularly?							
Great risk	5,636	29.7*	44.7*	10.7*	9.2*	20.8*	2.9*
Moderate risk	1,519	61.0	75.7	46.3	31.6	49.1	23.8
Slight or no risk	1,341	63.6	73.5	58.4	40.8	55.6	43.6

[1]At least once or twice a month.

[2]One or two drinks nearly every day.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 3.15 Prevalence of Past Month Substance Use Among Michigan Public School Students, by Parental Attitudes Toward Substance Use and Other Delinquent Behavior: 2000/2001

How wrong do your parents feel it would be for you to:	N	Tobacco[1]	Alcohol	Other Illicit Drugs[2]
Smoke cigarettes?				
Very wrong	6,130	11.0	22.5	10.9
Wrong	1,269	34.5	52.5	25.9
A little bit wrong	513	54.2	67.4	48.3
Not wrong at all	251	75.1	74.2	58.8
Drink alcohol at least once or twice a month?				
Very wrong	5,650	12.1	18.9	10.9
Wrong	1,480	31.4	54.9	27.8
A little bit wrong	786	43.0	69.2	34.9
Not wrong at all	243	47.4	73.0	43.7
Steal anything worth more than $5?				
Very wrong	6,925	17.3	28.6	14.5
Wrong	951	28.2	46.6	28.6
A little bit wrong	171	39.6	53.3	42.7
Not wrong at all	72	58.7	64.0	57.0
Draw graffiti, write things, or draw pictures on buildings or other property?				
Very wrong	6,961	16.6	28.1	13.9
Wrong	878	33.0	51.2	31.3
A little bit wrong	207	44.3	58.4	54.9
Not wrong at all	98	54.6	58.6	48.4
Pick a fight with someone?				
Very wrong	5,015	13.5	23.7	11.5
Wrong	2,111	24.5	39.2	20.4
A little bit wrong	846	38.3	55.9	37.8
Not wrong at all	168	48.0	61.8	50.0

[1]Includes cigarettes and smokeless tobacco.

[2]Includes marijuana, inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

with 54 percent of those whose parents would think it was a little bit wrong, 35 percent of those whose parents would think it was wrong, and 11 percent of those who would think it was very wrong.

Exhibit 3.16 shows that students who knew more adults who used substances were more likely to use substances themselves than those who did not know any adults who used substances. For example, more than half (56 percent) of the students who knew three or more adults who got drunk in the past year had used alcohol themselves in the past month, compared with 27 percent of students who knew one or two adults who did so, and 11 percent of students who knew no one who did so.

3.5.3 Importance of Survey and Honesty of Responses

Students who felt the survey was important were much less likely to report substance use than youth who did not think the survey was important (Exhibit 3.17). For example, 18 percent of the students who thought the survey was very important had ever used illicit drugs, compared with 29 percent of the students who thought the survey was important, 38 percent who thought it was fairly important, and 47 percent who thought it was not too important.

Exhibit 3.17 also shows that there was minimal difference in reports of substance use by honesty in completing the survey. For example, 33 percent of the youth who reported being very honest indicated having ever used illicit drugs compared to 40 percent of those who reported being pretty or somewhat honest.

3.6 Summary

The most commonly used substances among Michigan public school students in grades 6, 8, 10, and 12 were alcohol, cigarettes, and marijuana. The majority (54 percent) used at least some alcohol in their lifetime, and 31 percent used it in the month before the survey. In addition, approximately 15 percent exhibited binge drinking behavior in the two weeks before the survey. Recent tobacco use was reported by 19 percent of students and recent marijuana use by 13 percent. Relatively large numbers of students reported having ever used inhalants (14 percent).

There were few differences in substance use by gender. However, use of most substances was more common among Caucasian students than among African-American and Other race/ethnicity students. Additionally, grade was an important factor in prevalence of use. The rate of substance use generally increased between grades 6 and 12 for tobacco, alcohol, and other drugs. For example, prevalence of recent alcohol use was 6 percent among 6th graders, 25

Exhibit 3.16 Prevalence of Past Month Substance Use Among Michigan Public School Students, by Number of Adults Personally Known to Have Engaged in Substance Use and Other Delinquent Behavior: 2000/2001

About how many adults have you known personally who in the past month have:	N	Tobacco[1]	Alcohol	Other Illicit Drugs[2]
Gotten drunk or high?				
None	2,982	6.2*	10.9*	4.3*
1 or 2 adults	1,950	14.9	27.3	11.8
3 or more adults	3,310	36.8	56.3	34.2
Used marijuana, crack, cocaine, or other drugs?				
None	4,534	9.1*	19.2*	5.9*
1 or 2 adults	1,764	24.5	38.8	19.6
3 or more adults	1,985	42.5	57.8	44.8
Sold or dealt drugs?				
None	5,965	12.6*	23.5*	9.3*
1 or 2 adults	1,270	35.0	51.3	31.5
3 or more adults	1,078	49.2	62.7	55.2
Done other things that could get them in trouble with the police, like stealing, selling stolen goods, mugging or assaulting others, etc.?				
None	6,321	15.6*	26.7*	12.3*
1 or 2 adults	1,227	30.0	46.6	30.1
3 or more adults	776	42.2	55.0	44.7

[1]Includes cigarettes and smokeless tobacco.

[2]Includes marijuana, inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 3.17 Prevalence of Lifetime Substance Use Among Michigan Public School Students, by Importance of Survey Questions and Honesty in Completing Survey: 2000/2001

	N	Tobacco[1]	Alcohol	Illicit Drugs[2]
How important were these questions?				
Not too important	2,154	55.9*	71.3*	47.0*
Fairly important	2,031	46.2	64.5	37.6
Important	2,303	38.1	50.8	29.4
Very important	1,532	24.3	31.4	18.1
How honest were you in filling out this survey?				
Very honest	6,826	40.7*	53.9*	32.7*
Pretty honest	1,052	48.1	66.5	39.3
Somewhat honest	111	47.7	61.2	40.3
Rarely honest	48	+	+	+

[1]Includes cigarettes and smokeless tobacco.

[2]Includes marijuana, inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

[+]Data suppressed due to low precision.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

percent among 8th graders, 44 percent among 10th graders, and 54 percent among 12th graders. Rates of use also varied across region.

Overall, the data presented in this chapter provide basic prevalence information about alcohol and other drug use for Michigan public school students and offer insights into the groups most likely to experience substance use problems. However, again note that because these data were collected from a school setting, and students problematically involved with substance use have often dropped out of school, data estimates for these drugs are likely to be somewhat conservative.

4. PREVALENCE OF VIOLENT AND DELINQUENT BEHAVIORS AMONG PUBLIC SCHOOL STUDENTS

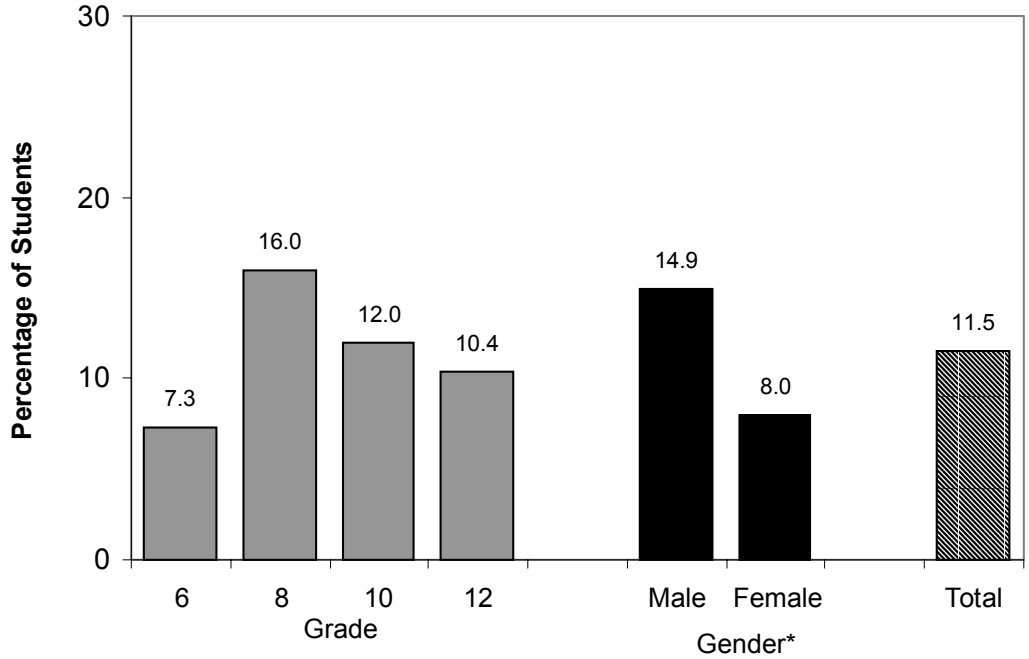
This chapter presents data about violent and delinquent behaviors among Michigan's 6th, 8th, 10th, and 12th grade public school student population. Violent behaviors include attacking others with the intent of seriously hurting them and carrying a handgun. Delinquent behaviors include being drunk or high at school, being suspended from school, stealing or attempting to steal a motor vehicle, selling illegal drugs, and having been arrested. The prevalence of each of these behaviors is reported by grade and gender.

4.1 Violent Behavior

4.1.1 Prevalence of Attacking Others with the Idea of Seriously Hurting Them

Exhibit 4.1 shows that more than 1 out of 10 Michigan public school students (12 percent) had attacked others in the past year with the idea of seriously hurting them. Prevalence

Exhibit 4.1 Prevalence of Attacking Someone in the Past Year with Idea of Seriously Hurting Them Among Michigan Public School Students, by Grade and Gender: 2000/2001



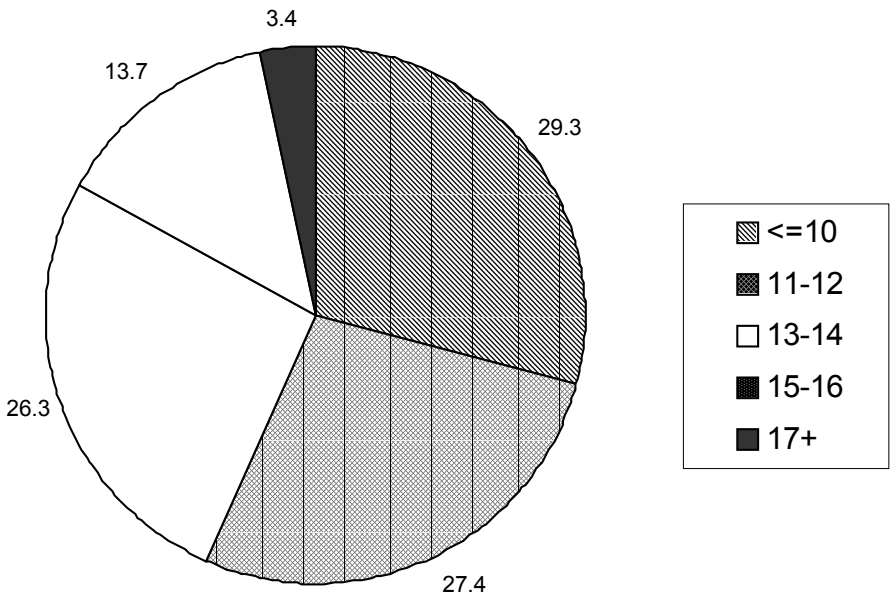
*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

of attacking someone peaked in grade 8 (16 percent). Males were nearly twice as likely as females to report this behavior (15 percent and 8 percent, respectively).

A total of nearly 14 percent of all students reported having ever attacked someone with the idea of seriously hurting them. Among these students, roughly equal numbers reported first attacking someone when they were between the ages of 11 and 12, 13 and 14, and 10 or younger (Exhibit 4.2).

Exhibit 4.2 Age First Attacked Someone Among Michigan Public School Students Who Reported Having Ever Attacked Someone: 2000/2001

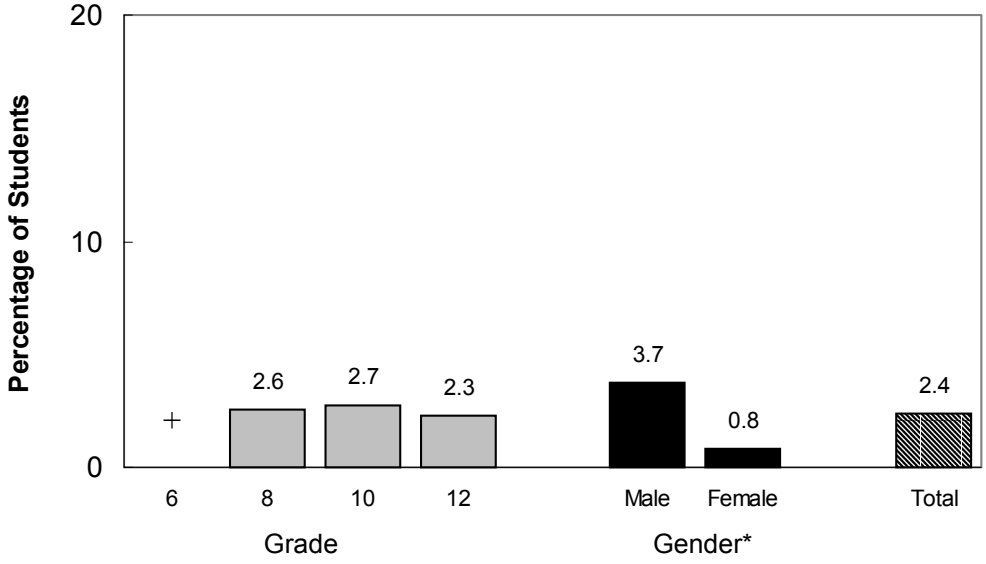


Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

4.1.2 Prevalence of Carrying a Handgun

Approximately 2 percent of Michigan public school students reported carrying a handgun other than for hunting or sport in the past year (Exhibit 4.3); the prevalence varied little across grades. However, it did vary by gender. Approximately four times as many males (4 percent) as females (1 percent) reported carrying a handgun in the past year.

Exhibit 4.3 Prevalence of Carrying a Handgun in the Past Year Among Michigan Public School Students, by Grade and Gender: 2000/2001



+Data suppressed due to low precision or low prevalence.
*Chi-square statistically significant at $p < .05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

4.2 Delinquent Behavior

4.2.1 Prevalence of Delinquent Behavior

Exhibit 4.4 shows the prevalence by grade of five delinquent behaviors: being drunk or high at school, being suspended from school, stealing or attempting to steal a motor vehicle, selling illegal drugs, and having been arrested.

Drunk or High at School. Overall, 13 percent of Michigan public school students reported having been drunk or high at school in the year prior to the survey. The prevalence of this behavior generally increased as the grade increased (10 percent of 8th graders, 20 percent of 10th graders, and 21 percent of 12th graders); estimates for grade 6 were suppressed because of the small number of students reporting this behavior. Little difference was found between males and females. Caucasian and African-American students reported a similar prevalence of being drunk or high at school, a rate that was slightly higher than that of the Other racial/ethnic category.

Suspended from School. Overall, approximately 14 percent of Michigan public school students reported having been suspended from school in the year prior to the survey. The

Exhibit 4.4 Prevalence of Delinquent Behavior in the Past Year Among Michigan Public School Students: 2000/2001

	Gender		Race/Ethnicity			Grade				
	Male	Female	Caucasian	African-American	Other Races[1]	6	8	10	12	Total
Drunk or high at school	13.6	11.5	13.1	12.4	9.4	+	10.3*	19.5	21.2	12.6
Suspended from school	17.8*	10.4	9.1*	39.4	18.0	11.8	19.8*	12.5	11.8	14.1
Stole or tried to steal a motor vehicle	2.5	+	1.5	3.7	+	+	2.3	2.8	+	1.9
Sold illegal drugs	8.2*	3.4	5.3	8.5	6.0	+	4.4*	8.5	10.6	5.8
Been arrested	5.6*	2.8	3.4*	8.4	5.5	+	5.5	4.9	6.2	4.3

Note: Unweighted numbers of respondents are shown in Exhibit 2.2.

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, or Arab Americans or Chaldeans.

+Data suppressed due to low prevalence.

*Chi-square significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

prevalence of this behavior was higher among males than females (18 percent vs. 10 percent) and among 8th graders than among those in other grades (20 percent vs. 12 percent). Suspension from school was higher among African-American students and students in the Other racial/ethnic category than among Caucasians (39 percent, 18 percent, and 9 percent, respectively).

Stole or Tried to Steal a Motor Vehicle. Approximately 2 percent of the public school students reported that they either stole or tried to steal a motor vehicle in the past year. Estimates for grades 6 and 12, for females, and for students in the Other racial/ethnic category were suppressed because of the small number of students reporting this behavior.

Sold Illegal Drugs. Overall, 6 percent of Michigan public school students reported that they sold illegal drugs in the year prior to the survey. The prevalence of this behavior was higher among males than females (8 percent vs. 3 percent) and among 10th and 12th graders. Estimates for grade 6 were suppressed because of the small number of students reporting this behavior. African-American students were somewhat more likely than Caucasian students to report selling illegal drugs (9 percent vs. 5 percent).

Been Arrested. Overall, 4 percent of Michigan public school students reported that they had been arrested in the year prior to the survey. Again, this was more prevalent among males than females (6 percent vs. 3 percent). African-American students were more likely than Caucasian and Other race/ethnicity students to report having been arrested (8 percent, 3 percent, and 6 percent, respectively). Little difference was found by grade.

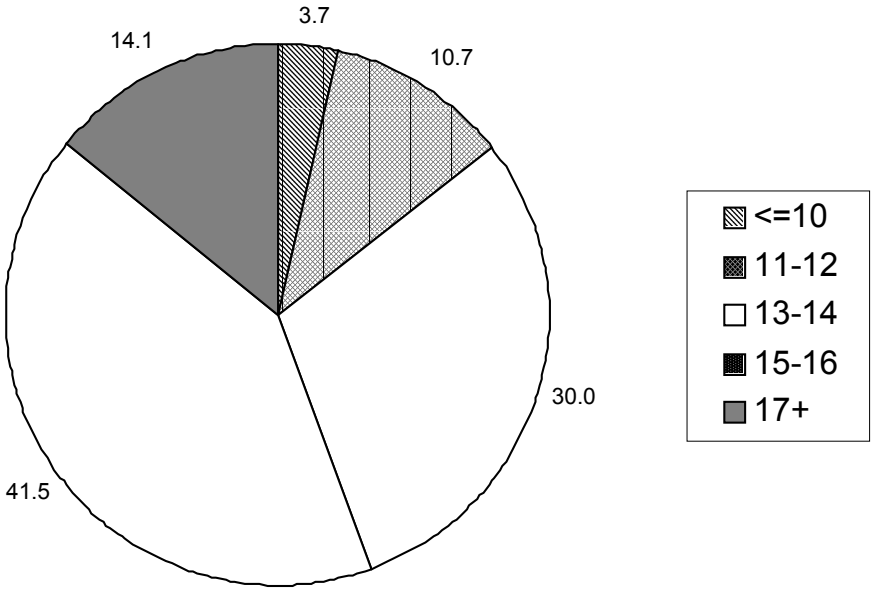
4.2.2 Age First Exhibited Behavior

Because of low prevalence, age at first occurrence of most of the delinquent behaviors could not be calculated. The one exception was for suspension from school. Overall, about 22 percent of all students reported having ever been suspended from school. Of these, over two-fifths (42 percent) reported having first been suspended between the ages of 15 and 16 (Exhibit 4.5).

4.3 Delinquent Behaviors by Peers

Students were also asked how many of their close friends had participated in delinquent behaviors in the past year. Exhibit 4.6 shows that 34 percent of students reported having at least one friend who was suspended from school, 15 percent reported having at least one friend who sold illegal drugs, and 14 percent reported at least one friend who was arrested. Less than 10 percent of students reported having friends who exhibited the remaining delinquent behaviors.

Exhibit 4.5 Age First Suspended from School Among Michigan Public School Students Who Reported Having Ever Been Suspended: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 4.6 Number of Close Friends Involved in Delinquent Behaviors in the Past Year Among Michigan Public School Students: 2000/2001

	1 Friend	2 Friends	3 Friends	4 Friends	None
Carried a handgun	2.6	0.9	0.4	0.8	95.2
Suspended from school	16.5	7.2	3.6	6.3	66.3
Stole or tried to steal a vehicle	4.1	1.4	0.5	0.9	93.1
Sold illegal drugs	7.4	3.6	1.6	2.5	85.0
Arrested	8.2	2.9	1.1	2.1	85.8
Dropped out of school	5.7	1.5	0.6	1.0	91.2
Belonged to a gang	4.0	1.5	0.7	1.8	92.1

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Of those who reported having one or more friends who exhibited the behaviors, most reported having only one friend who did so.

4.4 Summary

Overall, the data presented in this chapter provide prevalence information about violent and delinquent behavior among Michigan public school students and the grade level of students most likely to report these behaviors. As in Chapter 3, it is important to note that because these data were collected from a school setting, and violent or delinquent students may be more likely to have dropped out of school, data estimates for these behaviors may be somewhat conservative.

Violent behavior included attacking others in the year prior to the survey with the intent to seriously hurt them and carrying a handgun. Approximately 12 percent of Michigan public school students—and nearly twice as many males as females—reported attacking someone. This behavior peaked in grade 8. About 2 percent of Michigan public school students had carried a handgun other than for hunting or sport in the year prior to the study. Again males were much more likely than females to report this behavior. This behavior varied little by grade.

Delinquent behaviors reported in the survey were being drunk or high at school, being suspended from school, stealing or trying to steal a motor vehicle, selling illegal drugs, and having been arrested. Of these, the most common was being suspended from school (14 percent), followed by being drunk or high at school (13 percent). Reports were lower for selling illegal drugs (6 percent), being arrested (4 percent), and stealing or trying to steal a motor vehicle (2 percent).

5. RISK AND PROTECTIVE FACTORS FOR ADOLESCENT HEALTH BEHAVIORS AMONG PUBLIC SCHOOL STUDENTS

This chapter reports data on risk and protective factors for substance use among Michigan public school students. Social research has identified numerous and interrelated factors that increase or decrease the probability of alcohol, tobacco, and other drug use and related problems among adolescents. These risk and protective factors are found at multiple levels, including the individual, the family, the peer group, the school, and the community (Hawkins, Catalano, & Miller, 1992; Kandel, Simcha-Fagan, & Davies, 1986; Newcomb & Felix-Ortiz, 1992). Identification of specific populations in which risk factors are high and protective factors low permits identification of prevention needs and facilitates targeting programming toward the reduction of risk factors and the enhancement of protective factors (Hawkins, Arthur, & Catalano, 1997). For a more complete description of the literature on adolescent risk and protective factors, see Section 1.2, and for more information on risk and protective factor scale creation and analysis, see Section 2.9.1.

5.1 Community Factors

Exhibit 5.1 displays the percentage of public school students "at risk" and "resilient" on each of the community scales. This exhibit shows, for example, that 17 percent of Michigan public school students' scale scores for "low neighborhood attachment" were above the midpoint of the scale. Thus, 17 percent of Michigan's public school students are considered at risk on this factor. With regard to the protective factors, 72 percent of Michigan's public school students are considered "resilient" on the factor of "opportunities for conventional involvement."

Exhibit 5.1 shows that the most important community risk factor for Michigan public school students at the time of the survey was "perceived availability of drugs and handguns"; nearly 43 percent of all public school students were at risk on this factor. The second most important community risk factor was "norms and laws favorable toward substance use"; nearly one fifth of all students were at risk on this factor. This exhibit also shows the following:

- Males and females were generally equally at risk and resilient on each of the community risk factors.

- African-American students were more likely than Caucasian students or students in the Other racial/ethnic category to be at risk across most risk factors. Specifically, they were twice as likely as Caucasian students to be at risk on the factors of "low neighborhood attachment," "personal transitions and mobility," "and "community transitions and mobility," and four times as likely as students in the other racial or ethnic category on the

Exhibit 5.1 Profile of Community Risk and Protective Factors Among Michigan Public School Students, by Demographic Characteristics: 2000/2001

	Gender		Race/Ethnicity			Grade				
Community Factor	**Male**	**Female**	**Caucasian**	**African-American**	**Other Races[1]**	**6**	**8**	**10**	**12**	**Total**
Risk Factors										
Low neighborhood attachment	15.9	17.2	14.5*	27.8	18.9	11.0*	16.1	18.2	22.1	16.7
Community disorganization	7.1	7.7	4.8*	22.1	9.2	6.4	10.2	7.4	5.0	7.4
Personal transitions and mobility	9.8	12.5	9.1*	20.3	16.2	14.4*	13.6	8.2	8.6	11.2
Community transitions and mobility	10.9*	14.2	10.2*	24.2	17.4	10.6*	16.4	11.3	12.1	12.7
Norms and laws favorable toward substance use	18.5	16.8	16.2*	28.4	15.1	3.0*	15.3	24.4	29.2	17.6
Perceived availability of drugs and handguns	42.9	42.2	45.3*	33.1	34.1	4.6*	30.1	61.4	78.8	42.5
Protective Factors										
Opportunities for conventional involvement	70.7*	74.5	78.3*	39.3	65.3	74.3*	65.6	74.6	74.5	72.1
Rewards for conventional involvement	54.7	52.1	53.4	55.0	51.7	37.4*	54.6	62.2	60.0	53.5

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or Other Pacific Islanders, or Arab Americans or Chaldeans.

*Chi-square statistically significant at $p<.05$

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

risk factor of "community disorganization." Additionally, Caucasian students were twice as likely to be resilient on the protective factor of "opportunities for conventional involvement," whereas African-American students were slightly more resilient on the protective factor of "rewards for conventional involvement."

- As students got older, they reported generally increasing proportions of the risk factors, particularly for "low neighborhood attachment," "norms and laws favorable toward substance use" and "perceived availability of drugs."

Exhibit 5.2 displays the percentage of students within each region who were at risk or resilient on each of the community factors. There was considerable variability across regions; however, for all regions, the most important risk factor was "perceived availability of drugs."

All community risk factors were shown to be directly related to past-month alcohol and drug use; that is, students who were at risk on the risk factor scales (i.e., above the midpoint) were more likely to have used substances in the past month (Exhibit 5.3). The strongest relationships between substance use and risk behaviors were for the risk factors of "perceived availability of drugs and handguns" and "laws and norms favorable toward substance use." Students who were at risk on each of these factors were six to eight times as likely to have used alcohol or illicit drugs in the past month as students who were not at risk on these factors. In addition, all community protective factors were shown to also be directly related to less substance use. Students who were resilient on each of these protective factors were approximately one to two times as likely *not* to have used substances as students who were not resilient.

5.2 School Factors

Exhibit 5.4 displays the percentage of students "at risk" and "resilient" on each of the school scales. This exhibit shows the following:

- Males were more likely to be at risk on the factors of "academic failure" and "little commitment to school" than were females; additionally, females were more likely to be resilient than males on both of the protective factors.

- Students in the Other racial/ethnic category were more likely than Caucasian and African-American students to be at risk on the factor of "academic failure"; Caucasian students were twice as likely to be at risk on the factor of "little commitment to school" than African-American students. Students in the Other racial/ethnic category were slightly more likely to be resilient on the protective factor of "opportunities for positive

Exhibit 5.2 Profile of Community Risk and Protective Factors Among Michigan Public School Students, by Region: 2000/2001

Community Factor	Region							Total
	Upper Peninsula	Northern	Western	Central	Eastern	South-eastern	Detroit	
Risk Factors								
Low neighborhood attachment	18.3	14.7	19.9*	14.4*	14.6	14.6	28.3*	16.7
Community disorganization	6.1	4.6	11.9*	7.2	5.5	3.4*	23.9*	7.4
Personal transitions and mobility	7.6*	9.6	11.9	11.9	10.0	10.1	21.1*	11.2
Community transitions and mobility	10.9	14.7	16.8*	14.7	10.5*	8.7*	20.7*	12.7
Laws and norms favorable toward substance use	17.5	19.2	17.9	16.1	15.5	15.8	30.2*	17.6
Perceived availability of drugs and handguns	44.8	43.8	45.6	41.6	40.5	42.8	34.1*	42.5
Protective Factors								
Opportunities for conventional involvement	79.0*	81.5*	57.4*	77.4*	76.8*	79.9*	38.7*	72.1
Rewards for conventional involvement	51.5	50.2*	59.1*	52.4	48.8*	53.3	52.9	53.5

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

*Difference between regional estimate and state estimate statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.3 Odds Ratios of Community Risk and Protective Factors with Substance Use Among Michigan Public School Students: 2000/2001

	Past Month Use	
Community Factors	**Alcohol**	**Other Drugs**
Risk Factors		
Low neighborhood attachment	1.6	1.9
Community disorganization	1.5	2.3
Personal transitions and mobility	1.1	1.6
Community transitions and mobility	1.2	1.7
Laws and norms favorable toward substance use	5.7	8.5
Perceived availability of drugs and handguns	7.7	7.4
Protective Factors		
Opportunities for conventional involvement	0.8	0.6
Rewards for conventional involvement	2.0	2.3

Note: For risk factors, odds ratios greater than 1.0 indicate an increased likelihood of substance use relative to the reference group. For protective factors, odds ratios greater than 1.0 indicate a decreased likelihood of substance use relative to the reference group.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.4 Profile of School Risk and Protective Factors Among Michigan Public School Students, by Demographic Characteristics: 2000/2001

	Gender		Race/Ethnicity			Grade				
School Factor	**Male**	**Female**	**Caucasian**	**African-American**	**Other Races[1]**	**6**	**8**	**10**	**12**	**Total**
Risk Factors										
Academic failure	24.4*	16.6	19.4*	24.6	25.6	14.3*	23.2	25.2	19.5	20.7
Little commitment to school	31.6*	21.7	29.6*	14.9	20.8	8.0*	24.9	37.3	38.5	26.6
Protective Factors										
Opportunities for positive involvement	81.8	83.2	82.6	80.7	84.2	90.7*	81.9	79.0	78.0	82.5
Rewards for conventional involvement	50.8*	54.2	51.2	57.5	57.3	72.9*	54.7	39.7	41.4	52.7

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, or Arab Americans or Chaldeans.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

involvement." African-American students and students in the Other racial/ethnic category were more likely to be resilient on the factor of "rewards for conventional involvement."

- As Michigan public school students got older, they were generally at increasing risk on the factor of "little commitment to school," from 8 percent of 6th graders to 39 percent of 12th graders.

Exhibit 5.5 displays the percentage of students within each region who were at risk or resilient on each of the school factors. There was considerable variability across regions.

All school risk factors were shown to be directly related to substance use (Exhibit 5.6). Students who were at risk on each of these factors were two to four times as likely to have used alcohol or other drugs in the past month as students who were not at risk. Similarly, all school protective factors were shown to be positively related to less substance use. Students who were resilient on each of these protective factors were approximately twice as likely *not* to have used substances as students who were not resilient.

5.3 Family Factors

Exhibit 5.7 displays the percentage of students "at risk" and "resilient" on each of the family scales. The most important family risk factor for Michigan public school students was "poor discipline"; approximately one quarter of all students were at risk on this factor. This table also shows the following:

- Males were more likely than females to be at risk on the factors of "poor family management," "poor discipline," and "parental attitudes favorable to antisocial behavior," whereas females were more likely than males to be at risk on the factor of "parental attitudes favorable toward substance use." Females were slightly more likely to report resiliency on the factors of "attachment" and "rewards for conventional involvement" than males, and males were slightly more resilient on the protective factor of "opportunities for positive involvement."

- African-American students were more likely than Caucasians and students in the Other racial/ethnic category to be at risk on the factors of "poor family management" and "poor discipline," whereas Caucasian students were more likely to be at risk on the factor of "parental attitudes favorable toward substance use," and students in the Other racial or ethnic category were slightly more likely to be at risk on the factor of "parental attitudes favorable to antisocial behavior." Caucasian students were more likely to be resilient on the factor of "attachment." There was little difference in resiliency by race or ethnicity for the remaining protective factors.

Exhibit 5.5 Profile of School Risk and Protective Factors Among Michigan Public School Students, by Region: 2000/2001

School Factor	Region							Total
	Upper Peninsula	Northern	Western	Central	Eastern	South-eastern	Detroit	
Risk Factors								
Academic failure	25.9*	20.7	21.7	21.9	21.3	18.0	25.8*	20.7
Little commitment to school	31.0*	27.0	25.8	20.9*	27.8	30.0*	15.3*	26.6
Protective Factors								
Opportunities for positive involvement	77.4*	86.9*	83.2	86.4*	82.9	82.4	72.4*	82.5
Rewards for conventional involvement	49.3*	58.3*	50.4	54.5	56.2*	51.3	52.4	52.7

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

*Difference between regional estimate and state estimate statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.6 Odds Ratios of School Risk and Protective Factors with Substance Use Among Michigan Public School Students: 2000/2001

	Past Month Use	
School Factors	**Alcohol**	**Other Drugs**
Risk Factors		
Academic failure	1.9	2.8
Little commitment to school	3.5	3.7
Protective Factors		
Opportunities for positive involvement	2.2	2.2
Rewards for conventional involvement	2.5	2.2

Note: For risk factors, odds ratios greater than 1.0 indicate an increased likelihood of substance use relative to the reference group. For protective factors, odds ratios greater than 1.0 indicate a decreased likelihood of substance use relative to the reference group.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.7 Profile of Family Risk and Protective Factors Among Michigan Public School Students, by Demographic Characteristics: 2000/2001

	Gender		Race/Ethnicity			Grade				
Family Factor	**Male**	**Female**	**Caucasian**	**African-American**	**Other Races[1]**	**6**	**8**	**10**	**12**	**Total**
Risk Factors										
Poor family management	7.4	5.4	5.8*	10.4	7.3	2.5*	6.1	7.1	10.5	6.5
Poor discipline	29.3*	22.4	24.6*	34.0	26.1	8.4*	21.5	31.3	43.8	25.9
Parental attitudes favorable toward substance use	5.0	5.7	5.8	3.3	4.9	+	3.7*	7.3	11.0	5.3
Parental attitudes favorable to antisocial behavior	3.5	1.9	2.3	4.0	4.1	+	3.5	3.3	3.0	2.7
Protective Factors										
Attachment	79.0	79.3	80.4*	72.5	77.9	93.5*	78.5	72.0	73.2	79.3
Opportunities for positive involvement	78.4	76.9	78.0*	77.6	74.8	91.9*	76.8	70.9	71.3	77.7
Rewards for conventional involvement	65.8	68.0	66.6	68.7	67.4	84.7*	67.4	58.0	57.8	67.0

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, or Arab Americans or Chaldeans.

*Chi-square statistically significant at $p<.05$.

+Data suppressed due to low precision or low prevalence.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

- As students got older, they were at increasing risk on the factors of "poor family management," "poor discipline," and "parental attitudes favorable toward substance use." For example, only 8 percent of 6th graders were at risk on the factor of "poor discipline" compared with 44 percent of 12th graders.

Exhibit 5.8 displays the percentage of students within each region who were at risk or resilient on each of the family factors. There was considerable variability across regions.

All family risk factors were shown to be directly related to substance use (Exhibit 5.9). The strongest relationships between substance use and risk behaviors were for the risk factor of "parental attitudes favorable toward drug use." Students who were at risk on this factor were seven to eight times as likely to have used alcohol and other drugs in the past month as students who were not at risk on this factor. For all other risk factors, at-risk students were three to seven times as likely to report substance use as students not at risk. Similarly, all protective factors were shown to be positively related to less substance use. Students who were resilient on each of these protective factors were approximately two to three times as likely *not* to have used substances as students who were not resilient.

5.4 Peer-Individual Factors

Exhibit 5.10 displays the percentage of students "at risk" and "resilient" on each of the peer-individual scales. This exhibit shows that the most important peer-individual risk factors for Michigan public school students were "sensation seeking," "rebelliousness," and "friends' substance use"; approximately 19 percent to 23 percent of all students were at risk on each of these factors. The exhibit also shows the following:

- Males were more likely than females to be at risk on all the peer-individual risk factors except "rewards for antisocial involvement." Females were more likely to be resilient on both protective factors.

- Caucasian students were more likely than African-American students and students in the Other racial/ethnic category to be at risk on the factor of "attitudes favorable toward antisocial behavior," "attitudes favorable toward substance use," "friends' substance use," "sensation seeking," and "rewards for antisocial involvement." African-American students were more likely to be at risk on the factors of "early initiation of problem behavior," "perceived risks of substance use," and "interaction with antisocial peers." Students in the Other racial or ethnic category were more likely to be at risk on the factors of "rebelliousness" and "impulsiveness." African-American students were more likely to be resilient on both protective factors.

Exhibit 5.8 Profile of Family Risk and Protective Factors Among Michigan Public School Students, by Region: 2000/2001

Family Factor	Region							Total
	Upper Peninsula	Northern	Western	Central	Eastern	South-eastern	Detroit	
Risk Factors								
Poor family management	8.1	6.3	8.7	5.1	6.3	5.2	8.7	6.5
Poor discipline	25.7	25.9	24.8	22.4	24.4	25.5	40.4*	25.9
Parental attitudes favorable toward drug use	6.4	6.9	5.0	5.2	5.2	5.7	2.8	5.3
Parental attitudes favorable to antisocial behavior	3.8	+	3.7	+	+	2.4	+	2.7
Protective Factors								
Attachment	79.9	83.3*	76.5	80.1	81.4	80.2	70.7*	79.3
Opportunities for positive involvement	75.7	80.6	75.3	80.5	77.9	77.8	76.1	77.7
Rewards for conventional involvement	65.8	68.0	65.0	69.7	67.7	67.8	62.4*	67.0

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

*Difference between regional estimate and state estimate statistically significant at $p<.05$.

+Data suppressed due to low precision or low prevalence.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.9 Odds Ratios of Family Risk and Protective Factors with Health Behavior Scales Among Michigan Public School Students: 2000/2001

	Past Month Use	
Family Factors	**Alcohol**	**Other Drugs**
Risk Factors		
Poor family management	3.5	3.6
Poor discipline	4.4	4.3
Parental attitudes favorable toward substance use	6.7	7.7
Parental attitudes favorable to antisocial behavior	4.0	7.2
Protective Factors		
Attachment	2.7	2.7
Opportunities for positive involvement	2.3	2.7
Rewards for conventional involvement	2.4	2.4

Note: For risk factors, odds ratios greater than 1.0 indicate an increased likelihood of substance use relative to the reference group. For protective factors, odds ratios greater than 1.0 indicate a decreased likelihood of substance use relative to the reference group.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.10 Profile of Peer-Individual Risk and Protective Factors Among Michigan Public School Students, by Demographic Characteristics: 2000/2001

	Gender		Race/Ethnicity			Grade				
Peer-Individual Factor	**Male**	**Female**	**Caucasian**	**African-American**	**Other Races[1]**	**6**	**8**	**10**	**12**	**Total**
Risk Factors										
Rebelliousness	21.4*	17.3	18.8	20.1	21.4	8.9*	21.0	22.5	25.9	19.3
Early initiation of problem behavior	4.5	2.2	2.6	5.7	5.5	+	4.6	4.1	3.0	3.4
Impulsiveness	11.4	10.8	10.8	11.2	13.8	6.3*	14.2	13.5	10.2	11.1
Antisocial behavior	+	+	+	+	+	+	+	+	+	+
Attitudes favorable toward antisocial behavior	13.6*	7.4	10.8	9.1	10.4	2.8*	11.6	14.5	14.3	10.5
Attitudes favorable toward substance use	14.7*	10.8	14.4*	5.7	9.9	+	7.9*	19.4	25.2	12.7
Perceived risks of substance use	17.1*	10.1	12.5*	21.0	13.7	9.8*	11.9	16.1	17.9	13.7
Interaction with antisocial peers	2.2	1.3	1.2	4.2	+	+	1.8	2.4	2.7	1.8
Friends' substance use	20.0	17.5	20.9*	10.4	14.7	+	12.7*	28.2	37.0	18.7
Sensation seeking	29.9*	15.9	25.3*	13.8	18.5	8.0*	21.0	32.6	31.8	22.9
Rewards for antisocial involvement	10.4	12.1	12.3*	9.0	7.8	3.2*	11.1	17.4	14.0	11.3
Protective Factors										
Social skills	68.5*	80.5	73.6	79.3	73.3	92.7*	73.5	65.1	64.4	74.4
Belief in the moral order	68.2*	77.9	72.8	73.3	72.8	93.2*	71.7	61.9	63.1	73.0

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

[1]Includes Hispanics or Latinos, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, or Arab Americans or Chaldeans.

*Chi-square statistically significant at $p<.05$.

+Data suppressed due to low precision or low prevalence.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

- As students got older, they were at increasing risk on the factors of "rebelliousness," "attitudes favorable toward substance use," "friends' substance use," and "sensation seeking."

Exhibit 5.11 displays the percentage of students within each region who were at risk or resilient on each of the peer-individual factors. For all but one region, the most important risk factor was "sensation seeking."

All peer-individual risk factors were shown to be directly related to substance use (Exhibit 5.12). The strongest relationships between substance use and risk behaviors were for the risk factors of "attitudes favorable toward substance use" and "friends' substance use." Students who were at risk on each of these factors were 12 to 16 times as likely to have used alcohol or other drugs in the past month as students who were not at risk on these factors. Similarly, peer-individual protective factors were shown to be positively related to less substance use. Students who were resilient on these factors were five to nine times as likely *not* to report substance use as students who were not resilient.

5.5 Effect of the Number of Risk and Protective Factors

Overall, about 25 percent of Michigan public school students reported none of the risk factors asked about in this survey. Approximately 30 percent reported 1 or 2 risk factors, 26 percent reported 3 to 5 risk factors, 14 percent reported 6 to 9 risk factors, and 5 percent reported 10 or more risk factors.

Analyses to assess the cumulative effects of risk factors on four categories of substance use (i.e., tobacco, alcohol, marijuana, and any illicit drug) clearly show that the greater the number of risk factors, the more likely students were to report substance use (Exhibits 5.13 and 5.14) in the lifetime and past month. For example, although only 7 percent of the students with no risk factors reported past month use of alcohol, the percentages for those with risk factors were as follows: 23 percent of those with 2 risk factors, 41 percent of those with 4 risk factors, 55 percent of those with 6 risk factors, 69 percent of those with 8 risk factors, 80 percent of those with 10 risk factors, and 86 percent of those with 11 or more risk factors (Exhibit 5.14).

Overall, 15 percent of Michigan public school students reported all eight of the protective factors asked about in this survey. Approximately 18 percent reported seven protective factors, 16 percent reported six protective factors, 14 percent reported five, 13 percent reported four, 10 percent reported three, 7 percent reported two, and 6 percent reported only one or no protective factors.

Exhibit 5.11 Profile of Peer-Individual Risk and Protective Factors Among Michigan Students, by Region: 2000/2001

Peer-Individual Factor	Region							Total
	Upper Peninsula	Northern	Western	Central	Eastern	South-eastern	Detroit	
Risk Factors								
Rebelliousness	22.5	18.9	21.5	16.2	21.4	17.4	21.9	19.3
Early initiation of problem behavior	3.6	+	3.7	+	+	2.8	6.9*	3.4
Impulsiveness	12.7	11.0	11.8	11.0	10.6	10.8	10.9	11.1
Antisocial behavior	+	+	+	+	+	+	+	+
Attitudes favorable toward antisocial behavior	12.8	11.7	11.2	8.9	10.3	10.6	8.6	10.5
Attitudes favorable toward substance use	16.3*	15.1	13.3	10.2	15.3	12.8	5.2*	12.7
Perceived risks of substance use	14.3	15.2	12.4	13.1	14.3	12.1	24.4*	13.7
Interaction with antisocial peers	+	+	+	+	+	+	4.2	1.8
Friends' substance use	20.5	20.3	20.3	17.3	21.3	18.9	7.8*	18.7
Sensation seeking	30.1*	26.0+	22.1	21.8	26.7*	22.8	13.3*	22.9
Rewards for antisocial involvement	11.1	12.2	12.0	10.6	13.4	10.9	7.6*	11.3
Protective Factors								
Social skills	69.1*	72.9	72.8	77.2	74.6	74.4	79.2*	74.4
Belief in the moral order	71.1	74.3	72.2	77.9*	71.3	73.1	69.7	73.0

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

+Data suppressed due to low precision or low prevalence.

*Difference between regional estimate and state estimate statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

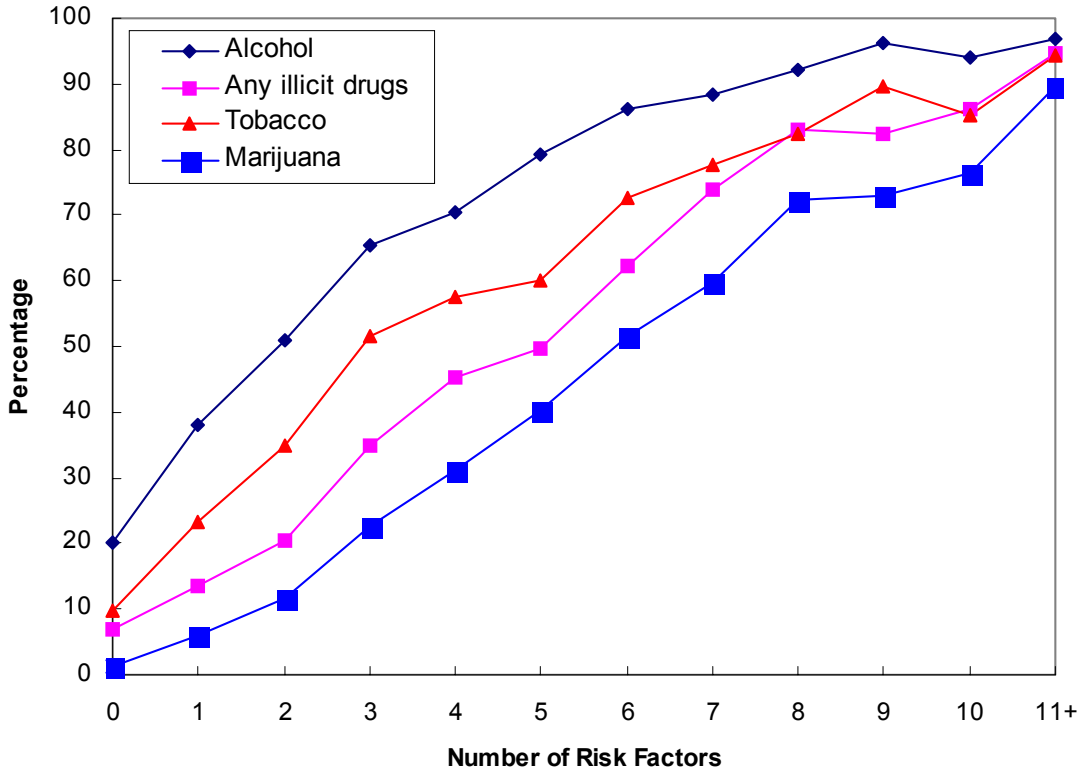
Exhibit 5.12 Odds Ratios of Peer-Individual Risk and Protective Factors with Substance Use Among Michigan Public School Students: 2000/2001

	Past Month Use	
Peer-Individual Factors	**Alcohol**	**Other Drugs**
Risk Factors		
Rebelliousness	3.2	3.5
Early initiation of problem behavior	9.7	12.9
Impulsiveness	2.1	2.6
Antisocial behavior	4.0	9.3
Attitudes favorable toward antisocial behavior	5.3	6.8
Attitudes favorable toward substance use	12.9	16.5
Perceived risks of substance use	3.6	6.0
Interaction with antisocial peers	6.0	12.4
Friends' substance use	12.0	16.0
Sensation seeking	5.7	5.8
Rewards for antisocial involvement	2.5	3.1
Protective Factors		
Social skills	8.7	7.9
Belief in the moral order	5.0	5.5

Note: For risk factors, odds ratios greater than 1.0 indicate an increased likelihood of substance use relative to the reference group. For protective factors, odds ratios greater than 1.0 indicate a decreased likelihood of substance use relative to the reference group.

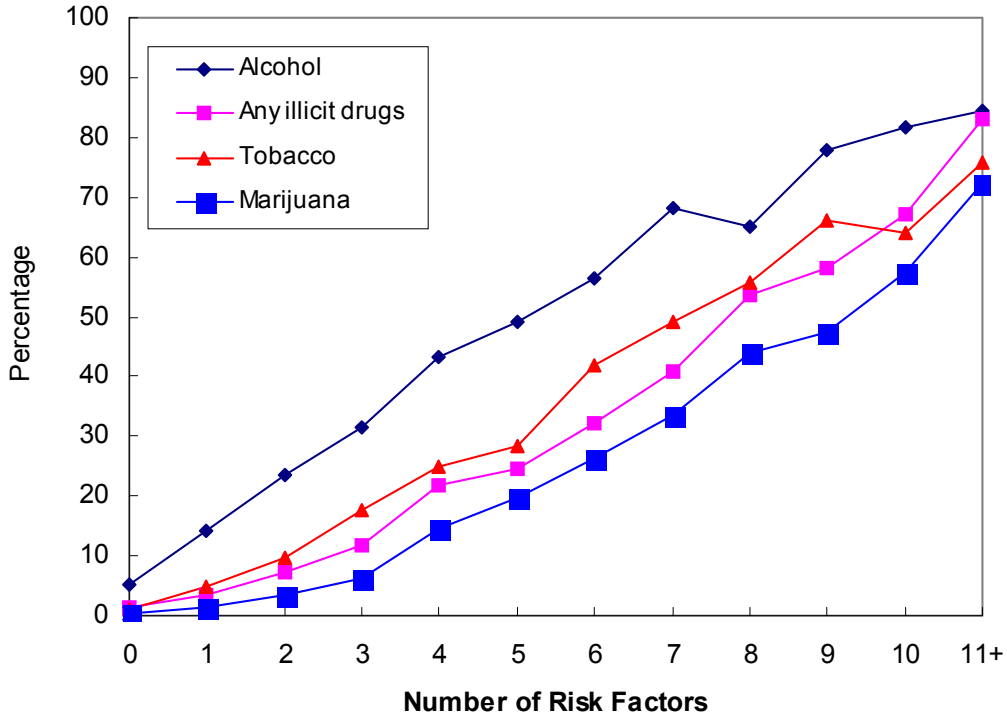
Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.13 Cumulative Effects of Risk Factors on Lifetime Substance Use Among Michigan Public School Students: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.14 Cumulative Effects of Risk Factors on Past Month Substance Use Among Michigan Public School Students: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Analyses to assess the cumulative effects of protective factors on substance use show that the greater the number of protective factors, the less likely students were to report substance use (Exhibits 5.15 and 5.16). For example, only 11 percent of the students with eight or more protective factors reported past month use of alcohol, whereas the rates reporting such use rose markedly as follows: 18 percent of those with seven protective factors, 34 percent of those with five protective factors, 44 percent of those with three, 58 percent of those with one, and 74 percent of those with no protective factors (Exhibit 5.16).

5.6 Summary

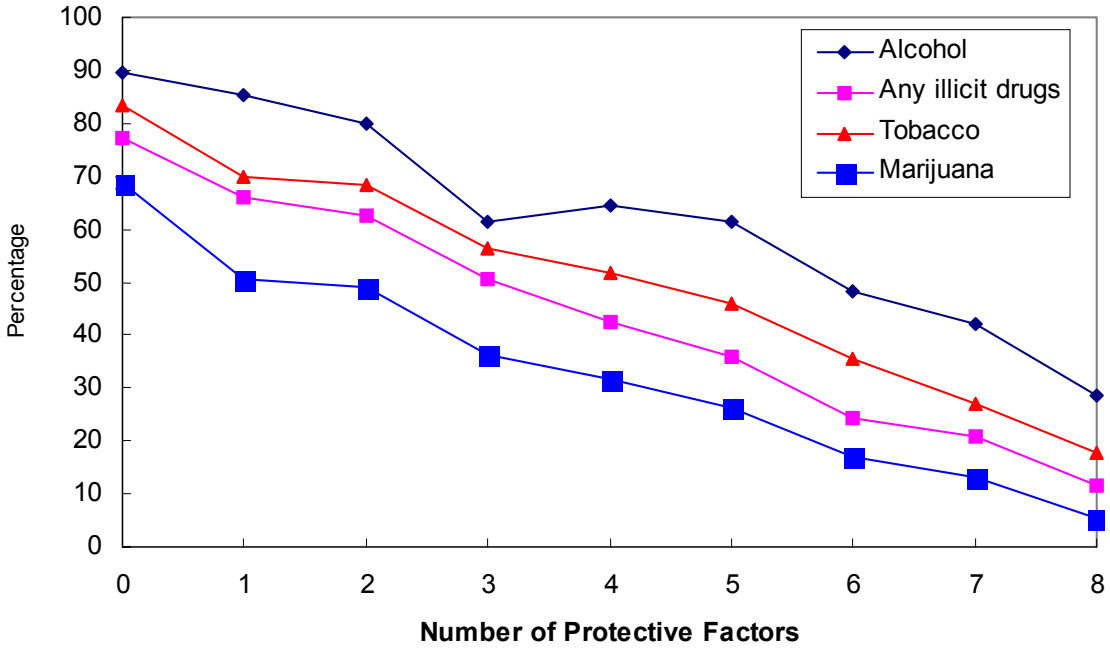
In general, as students aged, they were at increased risk on the various risk factors and less resilient on the protective factors. For example, only 5 percent of 6th graders were at risk on the factor of "perceived availability of drugs and handguns," compared with 30 percent of 8th graders, 61 percent of 10th graders, and 79 percent of 12th graders (nearly 43 percent of all public school students in Michigan were at risk on this factor). More than one quarter of the students were at risk on the factors of "little commitment to school" and "poor discipline," nearly 23 percent were at risk on the factor "sensation seeking," and approximately one fifth were at risk on the factors of "academic failure" and "rebelliousness."

All risk factors within each domain were shown to be directly related to substance use. Some of the strongest relationships between substance use were for the peer-individual risk factors of "attitudes favorable toward substance use" and "friends' substance use." Students who were at risk on each of these factors were 12 to 16 times as likely to have used alcohol or other drugs in the past month as students who were not at risk on these factors.

Protective factors from all domains were shown to be positively related to less substance use. Students who were resilient on these factors were 2 to 9 times as likely *not* to report substance use as students who were not resilient.

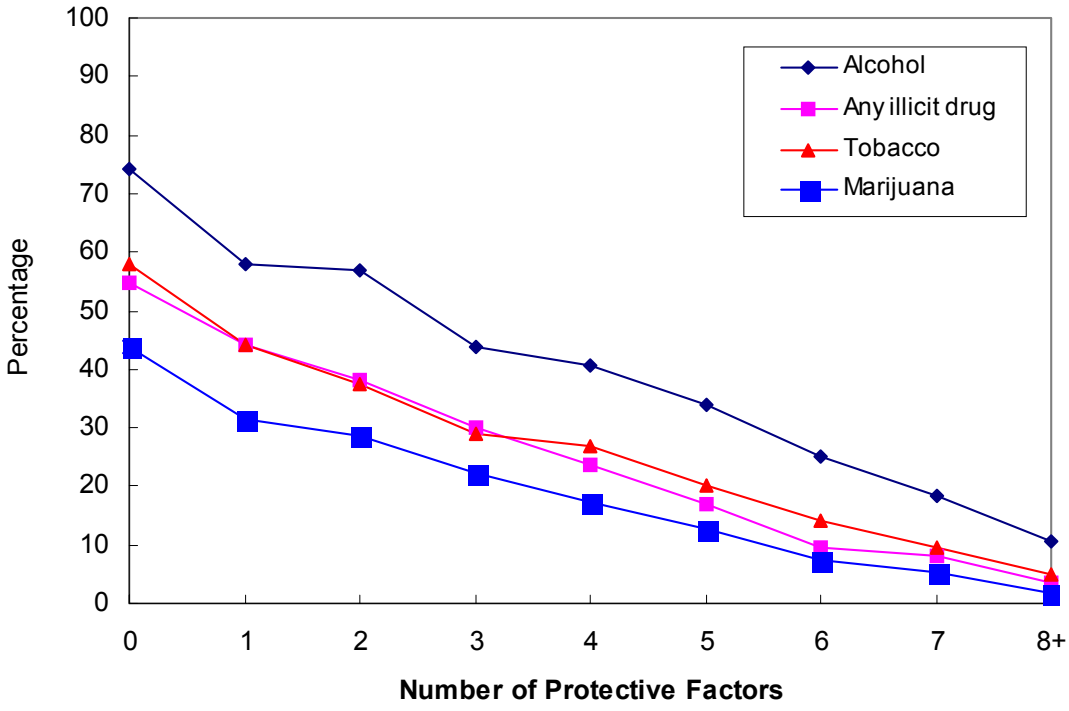
The cumulative effect of risk and protective factors on alcohol and drug use was evident among Michigan public school students. Students at high risk on a larger number of risk factors were increasingly more likely to use alcohol and other drugs, whereas students possessing a larger number of protective factors were increasingly less likely to use alcohol and other drugs.

Exhibit 5.15 Cumulative Effects of Protective Factors on Lifetime Substance Use Among Michigan Public School Students: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit 5.16 Cumulative Effects of Protective Factors on Past Month Substance Use Among Michigan Public School Students: 2000/2001



Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

6. SUMMARY AND IMPLICATIONS

Findings from this study have implications for substance abuse prevention policies, planning, and program development in Michigan. This study was designed to identify adolescent populations in greatest need of substance abuse prevention so that prevention programs and services can target risk and protective factors for substance abuse. Even though some of the risk factors examined in this study (e.g., grade in school, gender, and race/ethnicity) are impossible to alter, they do serve to identify those with elevated risk for substance use. Other risk factors can be modified, such as academic performance; antisocial behaviors; student perceptions; and availability of alcohol, tobacco, and other drugs (ATOD). The same is true for protective factors. This chapter provides highlights of findings and implications regarding programming.

6.1 Summary

6.1.1 Substance Use

The substances most commonly used by Michigan public school students were alcohol, tobacco, and marijuana.

- Almost one third of Michigan's public school students reported recent alcohol use.
- Nearly one fifth of all public school students reported recent tobacco use.
- More than one tenth of public school students reported recent marijuana use.

Substance use varied across some demographic characteristics.

- There were few differences in substance use by gender among public school students.
- Caucasian public school students were more likely to report recent tobacco, alcohol, and other drug use than students in the African-American and Other racial/ethnic categories.
- The rate of substance use generally increased steadily between grades 6 and 12 among public school students. For example, among public school students, prevalence of recent alcohol use was 6 percent among 6th

graders, 25 percent among 8th graders, 44 percent among 10th graders, and 54 percent among 12th graders.

- Rates of substance use were consistently higher in the Northern and Upper Peninsula regions and lower in Detroit.

6.1.2 Violent and Delinquent Behaviors

More than one in 10 Michigan public school students reported attacking others during the year prior to the survey with the intention of seriously hurting them.

Among public school students

- about twice as many males as females reported attacking someone, and
- rates for attacking someone were highest in grades 8 and 10.

Reports of carrying a handgun other than for the purpose of hunting were relatively rare. About 2 percent of public school students reported this behavior.

Of the delinquent behaviors asked about on the questionnaire, the most frequently reported ones were being suspended from school (14 percent) and being drunk or high at school (13 percent).

6.1.3 Risk and Protective Factors

One way to reduce students' substance use and violent or prohibited behavior is to identify those factors that make them more or less likely to participate in such behaviors and then work to reduce the risk factors while increasing protective factors. National research has identified a set of risk and protective factors that have been shown to be related to these undesirable behaviors (Hawkins, Catalano, & Miller, 1992; Hawkins, Arthur, & Catalano, 1997). The results of this student survey indicate that these risk and protective factors are related to the same behaviors in Michigan as well. Caution must be taken to interpret the data as a correlation and not necessarily as a cause and effect. For example, these data cannot reveal whether students are more likely to use substances *because* they perceive them to be available, whether students perceive substances to be more available because they use them, or whether both their use and their perception of availability might be caused by *a third factor*, such as laws and norms favorable to substance use.

The following findings suggest some potential targets for prevention efforts in public schools.

- In general, older students tend to demonstrate more risk factors and fewer protective factors than younger students.

- All risk factors in the community, school, family, and peer-individual domains were shown to be related to recent substance use (in the past month). The risk factors most strongly associated with these behaviors were as follows:

  - laws and norms favorable toward substance use,
  - perceived availability of drugs and handguns,
  - parental attitudes favorable toward substance use,
  - parental attitudes favorable toward antisocial behavior,
  - early initiation of problem behavior,
  - antisocial behavior,
  - attitudes favorable toward antisocial behavior,
  - attitudes favorable toward substance use,
  - perceived risks of substance use,
  - interaction with antisocial peers,
  - friends' use of substances, and
  - sensation seeking.

  For each of these risk factors, students with that risk factor were at least *six times* as likely to report recent alcohol or drug use as students without that risk factor.

- All protective factors in the community, school, family, and peer-individual domains were shown to be related to recent substance use (in the past month), meaning that students with any particular protective factor were less likely to use substances than those without it. The protective factors most strongly associated were as follows:

  - social skills and
  - belief in the moral order.

  For each of these factors, students *without* that protective factor were at least *five times* as likely to report substance use as students with that protective factor.

In addition to the relationships between risk and protective factors and substance use, there is a very strong linear relationship when multiple risk or protective factors are present. The more risk factors a student possesses, the more likely that student is to have used substances in the past month. The more protective factors present, the less likely that student is to have used substances in the past month.

6.1.4 Limitations of the Data

It is important to again note the limitations of the data gathered in the Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey. The primary limitation is its exclusive focus on adolescents in school. With such a focus, adolescent subpopulations

with concentrated numbers of problem users may be missed. These subpopulations include school dropouts, homeless and runaway students, and students who have been incarcerated or institutionalized—all of whom are likely to be undercounted in school surveys.

The subpopulation of most concern that was not captured is school dropouts. Most research to date has shown that dropouts are more likely to be substance users than those students who remain in school. The estimates provided in this study, therefore, are representative only of the student population and not of adolescents in general (Mensch & Kandel, 1988).

The second important limitation is that the questionnaire measures self-reported behavior. Caution should be exercised in interpreting these data because of respondents' tendencies to underreport undesirable behaviors and to have difficulty remembering complicated information, such as age at first use (Bailey, Flewelling, & Rachal, 1992b).

6.2 Comparison to Other Student Surveys

6.2.1 Are There Any Data on Private School Students?

The Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey did include a data collection with private school students. Private schools consist primarily of schools run by some religious denominations or charter schools allowed under state law. Only a small number of private schools participated, however. Another consideration was small sample sizes, with some regions having only a few or no private schools participating. Therefore there are concerns about how representative such findings may be. A complete report on these findings is not planned.

6.2.2 How Is This Substance Abuse Risk and Protective Factors Survey Related to the Youth Risk Behavior Survey (YRBS)?

The YRBS, sponsored by the federal Centers for Disease Control and Prevention (CDC) and conducted in Michigan by the Michigan Department of Education (MDE) every other year, is a statewide survey. As such, its sample design does not permit any regional or local estimates. It targets a sample of about 50 public schools and seeks to obtain representative findings on a statewide basis. The YRBS focuses on the prevalence of six categories of health behaviors among youth in grades 9 through 12. Because of time limitations to get the survey completed within one class period, it is unable to go into much detail on substance abuse issues.

In contrast, the Substance Abuse Risk and Protective Factors 2000/2001 Student Survey is highly specific to substance abuse and focuses on the **risk and protective** factors that are

highly correlated with violence and alcohol, tobacco, and other drug use. The sample design called for representative sampling at the level of each substance abuse planning region that MDCH uses in its efforts involving managing federal funding for prevention services through the federal Substance Abuse Prevention and Treatment (SAPT) annual block grant application and progress report. This survey involved grades 6, 8, 10, and 12, and also could be completed in one class period.

6.2.3 How Does the Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey Differ from the Other Substance Abuse "Student" Surveys that Schools Are Often Asked to Participate In?

Most school surveys are carried out by single schools at their own initiative. Rarely are representative sampling considerations brought into planning surveys, unless they are large-scale designs. Alternatively, sometimes a number of schools decide individually to carry out a particular survey after being approached by a survey vendor. Even when these efforts involve a large number of schools and students, they are not representative sample designs. In most instances, each school makes its own decisions on how to implement the survey. If surveys are not carefully organized to ensure uniformity and representativeness in sampling from the beginning, then it is poor scientific practice to attempt to combine and compare results from what basically are convenience samples of schools and students. Most often schools are not at all interested in having their data combined with any other school's and are hesitant about participating in standardized approaches that could involve comparisons of findings. All these factors impair or even make it impossible to generalize findings from such efforts.

The Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey, however, focused on obtaining generalizable and representative findings about adolescents in schools at a broad planning region level, as well as statewide. The sample design focused on identifying the minimum number of schools and students needed in each region to provide credible results reflective of that region. No individual school results would be singled out, as substance abuse is found everywhere. Gaining scientifically sound regional data allows identification of real needs and assets in each geographic region, short of conducting surveys in every single school.

Most substance abuse school surveys focus solely on lifetime and current substance use and abuse by students. Sometimes other health questions are added, or possibly questions about school violence or other current concerns. The Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey approach went beyond simply measuring substance use. This survey effort examined factors in the community, the school, within the peer/individual context, and in the family, that influence student use *and* nonuse of alcohol, tobacco, and other drugs.

6.3 Implications

When considering program development and implementation, Michigan should move in the following directions with the existing prevention system.

6.3.1 Environmental Strategies

Environmental strategies target overarching factors that affect each community as a whole, changing the environment in order to reduce substance abuse. Used with increasing frequency over the past 10 years, they are a powerful tool in society's effort to reduce the toll of alcohol, tobacco, and other drug problems. Although they build on and complement traditional prevention efforts, environmental strategies reflect a fundamental shift in perspective. In an environmental or systems approach, alcohol, tobacco, and other drug use is seen as a community issue reflecting the community's norms or practices. Individual behavior is seen as being influenced by a complex interaction of many factors, including such immediate influences on the individual as family norms and behavior as well as peer pressure. They also include broader areas, such as school, workplace, neighborhood, religious institutions, and communities, as well as the media, economics, pricing, and availability of substances.

6.3.2 Bonding and Meaningful Involvement

A second area of relevance for prevention programs in Michigan centers on increasing the bonding and involvement of Michigan's students with their families, schools, communities, or a significant positive role model or mentor. Current research in the prevention field has identified opportunities for bonding and involvement as one of the most salient protective factors in terms of preventing substance use and other problematic behaviors by students. Increasingly, the importance of multiple bonds is being recognized—students need these opportunities in all the major arenas in their lives: family, school, and community. Although the importance of the parent-child bond has always been acknowledged and was strongly documented by the National Longitudinal Study of Adolescent Health (Resnick et al., 1997), the prevention field is paying increasing attention to the importance of the bonds between students and their peers, their teachers, and other adults in their communities. Students frequently cite a lack of opportunity for involvement in their community as one of their primary concerns, and they express a desire for additional opportunities to build meaningful relationships with adults. Programs that increase these opportunities should play an important part in future prevention initiatives.

Systemic change on multiple levels is the most effective way to have an impact on the current and future issue of substance abuse and related undesirable behaviors. Adoption of environmental strategies and programs that provide and foster opportunities for bonding and

meaningful involvement holds much promise. These programmatic directions would complement existing prevention efforts in Michigan.

6.4 Michigan's Strategic Student Prevention Initiatives

MDCH has championed several strategic student prevention initiatives based on the theory that prevention programs can achieve positive outcomes in one or more domains. When the outcomes are achieved, the result is that ATOD use is delayed, reduced, or prevented altogether. Researchers also recommend multiple science-based interventions, which often can enhance the outcomes achieved.

Michigan public schools currently receive funding, based on per-pupil count, to conduct school-based ATOD and violence prevention programs for students K-12. Schools are encouraged to provide science-based programs to their students to achieve positive outcomes. Many schools are using the Michigan Comprehensive School Health Model, a "promising program" recognized by the U.S. Department of Education's Expert Panel. Michigan prevention efforts also often emphasize skill-building and increasing conflict resolution skills to reduce conflicts and bullying behavior.

Funding is also available (on a competitive basis) for community-based drug and violence prevention projects for youth up to age 21. Funds support programs in the area of truancy; court-referred youth; juvenile delinquents; limited English proficient youth and families; expelled and suspended students; special education students; wards of the courts; deaf, hearing- or speech impaired; and other groups.

Some ATOD and violence prevention programs available in Michigan include the following:

- School-based programs: funds available to all Michigan schools.
- Community-based programs: competitive 1-year grants to community groups through the Governor's Discretionary Grants.
- Michigan Resource Center: materials and videos on substance abuse and traffic safety publications provided to Michigan residents.
- Prevention Network: Michigan's coalition to support and expand community substance abuse prevention efforts. Supports the Michigan Coalition to Reduce Underage Drinking (MCRUD), as well as providing community groups with grants to perform environmental change and educational activities. The grants also support activities including ATOD

prevention, youth tobacco access reduction, and prevention projects targeting populations of color.

- Campus Connections: funds provided to 15 universities, for high school seniors entering college, to provide parent brochures and activities without the use of alcohol, tobacco, and other drugs.

- The Department of Military Affairs: provides the Michigan Youth Challenge program to Michigan youth who are at risk of dropping out of school or have been expelled.

- Zip, Zero, Zilch Campaign: extensive under–age 21 public education and information campaigns on the rapidly changing alcohol laws.

- Community-based prevention services: include risk reduction, assets development, resiliency enhancement, mentoring services, and peer programming.

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APPENDIX A

Supplementary Tables

Exhibit A.1 Number and Percentage of Michigan Public School Survey Respondents, by Gender and Grade: 2000/2001

Gender/Grade	Unweighted N	Weighted Percentage	Weighted Percentage
Male			
Grade 6	836	9.6	13.4
Grade 8	1,226	14.1	13.2
Grade 10	1,204	13.9	12.8
Grade 12	969	11.1	10.5
Female			
Grade 6	833	9.6	12.7
Grade 8	1,303	15.0	13.5
Grade 10	1,304	15.0	13.4
Grade 12	1,020	11.7	10.5

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.2 Prevalence of Substance Use in the Past Month Among Michigan Public School Students, by Gender and Grade: 2000/2001

	Male				Female			
Substance	**6**	**8**	**10**	**12**	**6**	**8**	**10**	**12**
Tobacco	2.9	13.9	28.9	36.9	1.9	13.9	26.2	35.7
Cigarettes	2.1	11.5	24.5	33.7	1.8	13.6	25.6	35.3
Smokeless tobacco	1.2	5.5	13.7	14.1	0.3	1.9	3.3	2.2
Alcohol	6.3	23.8	44.5	56.1	4.9	26.0	42.4	51.9
Other Illicit Drugs	2.6	16.0	27.4	29.7	4.1	15.0	22.0	22.4
Marijuana	0.3	10.0	23.2	26.4	0.8	7.5	17.3	19.7
Inhalants	2.1	5.6	3.4	3.1	3.3	8.1	3.4	1.4
Cocaine	0.2	0.8	2.4	2.4	+	1.0	0.8	1.7
LSD or other psychedelics	0.3	0.9	4.5	5.3	0.2	1.6	3.0	3.5
Speed or amphetamines	0.1	2.0	2.9	2.9	+	1.6	2.6	1.9
Heroin	0.2	0.2	0.9	0.2	+	0.4	0.2	0.4
Tranquilizers	0.5	0.4	3.2	4.7	0.1	1.5	3.5	2.0
Barbiturates	0.2	0.7	1.5	4.0	+	0.4	1.6	1.5
Designer drugs[1]	0.1	1.1	2.9	4.2	+	1.2	2.5	2.3
Steroids	0.6	0.9	1.3	1.0	0.2	0.8	0.7	+

Note: Unweighted numbers of respondents are shown in Exhibit A.1.

[1]Includes GHB, Ecstacy (X), or ketamine (Special K).

+Data suppressed due to low precision or low prevalence.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.3 Prevalence of Violent and Delinquent Behavior in the Past Year Among Michigan Public School Students, by Gender and Grade: 2000/2001

	Male				Female			
Behavior	**6**	**8**	**10**	**12**	**6**	**8**	**10**	**12**
Attacking someone with idea of hurting them	10.4	19.1	15.7	14.5	3.3	13.2	8.3	6.3
Carrying a handgun, other than for hunting or sport	2.8	4.4	4.1	3.7	0.4	1.2	1.1	0.7
Got drunk or high at school	0.9	8.9	21.7	25.7	0.9	11.8	17.7	15.9
Suspended from school	15.0	24.5	15.4	15.9	8.5	15.1	9.6	7.6
Stole or tried to steal a motor vehicle	0.3	3.7	4.1	2.0	0.9	1.2	1.6	0.7
Sold illegal drugs	0.3	5.7	12.7	15.8	0.4	3.3	4.6	5.4
Been arrested	0.8	6.7	6.6	8.9	0.4	4.0	3.3	3.6

Note: Unweighted numbers of respondents are shown in Exhibit A.1.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.4 Combinations of Substance Use in the Lifetime Among Michigan Public School Students: 2000/2001

	Males					Females				
	N	Cigarettes	Alcohol	Marijuana	Other Illicit Drugs	N	Cigarettes	Alcohol	Marijuana	Other Illicit Drugs
Cigarettes	1,700	100.0	87.6	60.8	59.2	1,888	100.0	88.8	48.3	60.2
Alcohol	2,299	62.8	100.0	47.1	65.2	2,481	68.5	100.0	39.2	65.9
Marijuana	1,152	89.1	96.3	100.0	48.7	1,001	92.7	97.7	100.0	46.0
Other illicit drugs[1]	3,079	29.8	46.0	16.9	100.0	3,380	32.3	46.2	12.9	100.0

[1]Includes inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.5 Prevalence of Past Month Use of Cigarettes, Alcohol, Marijuana, and Other Illicit Drugs Among Michigan Public School Students, by Lifetime Use, by Gender: 2000/2001

	Males					Females				
	N	Cigarettes	Alcohol	Marijuana	Other Illicit Drugs	N	Cigarettes	Alcohol	Marijuana	Other Illicit Drugs
Cigarettes	712	100.0	81.2	54.2	65.7	788	100.0	79.8	46.6	73.1
Alcohol	1,366	44.0	100.0	38.3	75.4	1,398	48.0	100.0	30.6	79.7
Marijuana	616	63.9	83.8	100.0	58.3	497	77.5	84.9	100.0	62.7
Other illicit drugs	3,472	12.5	26.3	9.3	100.0	3,855	15.2	27.4	7.7	100.0

[1]Includes inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.6 Prevalence of Lifetime Use of Cigarettes, Alcohol, and Marijuana Among Michigan Public School Students, by Peer Perception of Use and Perceived Risk of Use, by Gender: 2000/2001

	Males				Females			
	N	Cigarettes	Alcohol	Marijuana	N	Cigarettes	Alcohol	Marijuana
What are the chances you would be seen as cool if you:								
Smoked cigarettes?								
Very or pretty good chance	263	63.1*	73.9*	47.8*	345	60.5*	70.7*	31.2*
Some, little, or no chance	3,830	37.5	53.5	25.2	4,000	40.4	53.2	20.8
Drank alcohol regularly? [1]								
Very or pretty good chance	523	63.0*	77.5*	47.8*	649	58.2*	77.4*	32.5*
Some, little, or no chance	3,558	35.6	51.5	23.5	3,701	39.1	50.8	19.7
Smoked marijuana?								
Very or pretty good chance	499	63.2*	78.3*	56.9*	519	65.4*	77.3*	45.1*
Some, little, or no chance	3,591	36.1	51.9	22.6	3,833	39.0	52.0	18.7
How much do you think people risk harming themselves (physically or in other ways) if they:								
Smoke cigarettes?								
Great risk	2,655	32.0*	50.1*	21.9*	3,035	37.6*	51.1*	18.6*
Moderate risk	929	57.0	68.8	36.8	902	56.1	66.9	31.6
Slight or no risk	454	48.6	56.4	36.2	396	45.1	56.7	25.6
Drink alcohol regularly? [2]								
Great risk	1,547	24.2*	37.0*	15.2*	2,077	34.2*	45.1*	16.8*
Moderate risk	1,251	43.7	60.2	28.9	1,344	47.5	61.5	24.6
Slight or no risk	1,233	53.8	71.7	38.8	893	52.7	69.0	30.4
Smoke marijuana regularly?								
Great risk	2,480	26.2*	42.5*	10.8*	3,042	33.0*	46.5*	10.7*
Moderate risk	779	58.9	76.4	46.1	707	63.4	74.9	46.2
Slight or no risk	759	63.0	74.3	61.2	543	67.3	75.2	56.9

[1]At least once or twice a month.

[2]One or two drinks nearly every day.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.7 Prevalence of Past Month Use of Cigarettes, Alcohol, and Marijuana Among Michigan Public School Students, by Peer Perception of Use and Perceived Risk of Use, by Gender: 2000/2001

	Males				Females			
	N	Cigarettes	Alcohol	Marijuana	N	Cigarettes	Alcohol	Marijuana
What are the chances you would be seen as cool if you:								
Smoked cigarettes?								
Very or pretty good chance	263	41.8*	49.7*	29.4*	345	37.4*	41.9*	19.3*
Some, little, or no chance	3,830	15.4	30.0	13.2	4,000	16.8	29.6	10.2
Drank alcohol regularly? [1]								
Very or pretty good chance	523	33.9*	55.9*	29.2*	649	28.3*	49.7*	15.8*
Some, little, or no chance	3,558	14.6	27.6	11.9	3,701	16.7	27.4	10.0
Smoked marijuana?								
Very or pretty good chance	499	32.5*	51.9*	39.5*	519	33.4*	49.1*	25.7*
Some, little, or no chance	3,591	15.1	28.7	10.9	3,833	16.6	28.5	9.1
How much do you think people risk harming themselves (physically or in other ways) if they:								
Smoke cigarettes?								
Great risk	2,655	11.2*	25.9*	11.0*	3,035	13.8*	26.5*	8.7*
Moderate risk	929	30.7	43.3	19.8	902	31.1	44.0	16.8
Slight or no risk	454	27.6	41.2	24.1	396	26.6	35.1	16.7
Drink alcohol regularly? [2]								
Great risk	1,547	7.6*	14.3*	7.3*	2,077	13.0*	21.5*	7.5*
Moderate risk	1,251	18.3	34.5	14.2	1,344	21.5	37.2	12.3
Slight or no risk	1,233	28.3	50.1	23.5	893	28.3	44.5	18.6
Smoke marijuana regularly?								
Great risk	2,480	7.6*	18.4*	2.9*	3,042	10.7*	23.0*	3.0*
Moderate risk	779	28.2	49.1	23.4	707	34.6	48.9	24.1
Slight or no risk	759	39.2	57.8	45.1	543	45.1	53.9	43.0

[1]At least once or twice a month.

[2]One or two drinks nearly every day.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.8 Prevalence of Lifetime Substance Use Among Michigan Public School Students, by Parental Attitudes Toward Substance Use and Other Delinquent Behavior: 2000/2001

How wrong do your parents feel it would be for you to:	N	Tobacco[1]	Alcohol	Other Illicit Drugs[2]
Smoke cigarettes?				
Very wrong	6,130	30.8*	45.3*	24.4*
Wrong	1,269	68.7	81.2	52.3
A little bit wrong	513	80.9	88.5	69.6
Not wrong at all	251	87.9	94.7	81.8
Drink alcohol at least once or twice a month?				
Very wrong	5,650	31.6*	41.2*	23.7*
Wrong	1,480	60.2	84.4	51.3
A little bit wrong	786	73.1	92.0	63.0
Not wrong at all	243	71.0	94.0	61.2
Steal anything worth more than $5?				
Very wrong	6,925	38.7*	51.8*	29.8*
Wrong	951	56.2	72.9	52.4
A little bit wrong	171	68.6	78.6	63.7
Not wrong at all	72	70.7	88.0	65.2
Draw graffiti, write things, or draw pictures on buildings or other property?				
Very wrong	6,961	37.9*	51.1*	29.3*
Wrong	878	61.8	79.9	55.2
A little bit wrong	207	76.1	81.1	72.8
Not wrong at all	98	72.5	83.8	67.0
Pick a fight with someone?				
Very wrong	5,015	32.7*	44.9*	24.6*
Wrong	2,111	51.9	67.5	42.3
A little bit wrong	846	67.5	81.2	59.7
Not wrong at all	168	65.5	84.8	67.4

[1]Includes cigarettes and smokeless tobacco.

[2]Includes marijuana, inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.9 Prevalence of Lifetime Substance Use Among Michigan Public School Students, by Number of Adults Personally Known to Have Engaged in Substance Use and Other Delinquent Behavior: 2000/2001

About how many adults have you known personally who in the past year have:	N	Tobacco[1]	Alcohol	Other Illicit Drugs[2]
Used marijuana, crack, cocaine, or other drugs?				
None	4,534	26.3*	41.6*	16.3*
1 or 2 adults	1,764	53.3	63.9	43.8
3 or more adults	1,985	71.8	83.0	68.4
Sold or dealt drugs?				
None	5,965	32.3*	47.0*	22.6*
1 or 2 adults	1,270	64.5	74.9	58.0
3 or more adults	1,078	79.0	87.5	77.6
Done other things that could get them in trouble with the police, like stealing, selling stolen goods, mugging or assaulting other, etc.?				
None	6,321	36.4*	50.0*	27.1*
1 or 2 adults	1,227	57.3	69.5	51.5
3 or more adults	776	69.3	83.4	66.9
Gotten drunk or high?				
None	2,982	19.7*	29.6*	11.1*
1 or 2 adults	1,950	39.4	54.1	30.2
3 or more adults	3,310	66.6	82.9	58.6

[1]Includes cigarettes and smokeless tobacco.

[2]Includes marijuana, inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.10 Prevalence of Past Year Substance Use Among Michigan Public School Students, by Importance of Survey Questions and Honesty in Completing Survey: 2000/2001

	N	Tobacco[1]	Alcohol	Other Illicit Drugs[2]
How important were these questions?				
Not too important	2,154	29.8*	45.9*	27.6*
Fairly important	2,031	22.7	36.3	18.2
Important	2,303	14.6	27.5	13.7
Very important	1,532	10.0	15.1	7.9
How honest were you in filling out this survey?				
Very honest	6,826	19.2	30.5	17.0
Pretty honest	1,052	21.7	39.6	17.6
Somewhat honest	111	+	46.6	+
Rarely honest	48	+	+	+
Not honest at all	0	+	+	+

[1]Includes cigarettes and smokeless tobacco.

[2]Includes marijuana, inhalants, cocaine, LSD or other psychedelics, speed or amphetamines, heroin, tranquilizers, barbiturates, designer drugs (GHB, Ecstacy [X], or ketamine [Special K]), and steroids.

[+]Data suppressed due to low precision.

*Chi-square statistically significant at $p<.05$.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.11 Factor Analysis of Community Risk and Protective Factors Among Michigan Public School Students: 2000/2001

Community Factor	No. of Items	Scale Midpoint	% Non-missing Data	Alpha	Mean
Risk Factors					
Low neighborhood attachment	2	2.5	92.3	.83	1.9
Community disorganization	5	2.5	93.0	.80	1.7
Personal transitions and mobility	4	2.5	92.8	.69	1.7
Community transitions and mobility	1	2.5	93.0	NA	1.9
Norms and laws favorable toward drug use	10	2.5	94.1	.84	1.8
Perceived availability of drugs	4	2.5	93.6	.88	2.4
Protective Factors					
Opportunities for conventional involvement	5	2.5	89.3	.76	3.0
Rewards for conventional involvement	3	2.5	93.2	.81	2.4

NA: Not applicable.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.12 Factor Analysis of School Risk and Protective Factors Among Michigan Public School Students: 2000/2001

School Factor	No. of Items	Scale Midpoint	% Non-missing Data	Alpha	Mean
Risk Factors					
Academic failure	2	2.5	94.0	.68	2.0
Little commitment to school	9	3.0	98.8	.76	2.6
Protective Factors					
Opportunities for positive involvement	5	2.5	97.8	.65	2.9
Rewards for conventional involvement	3	2.5	98.4	.75	2.5

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.13 Factor Analysis of Family Risk and Protective Factors Among Michigan Public School Students: 2000/2001

Family Factor	No. of Items	Scale Midpoint	% Non-missing Data	Alpha	Mean
Risk Factors					
Poor family management	6	2.5	90.9	.82	1.7
Poor discipline	3	2.5	90.4	.77	2.0
Parental attitudes favorable toward drug use	3	2.5	91.7	.79	1.3
Parental attitudes favorable to antisocial behavior	3	2.5	91.7	.72	1.3
Protective Factors					
Attachment	6	2.5	87.1	.63	3.2
Opportunities for positive involvement	3	2.5	90.4	.78	3.0
Rewards for conventional involvement	2	2.5	89.4	.88	3.0

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.14 Factor Analysis of Peer-Individual Risk and Protective Factors Among Michigan Public School Students: 2000/2001

Peer-Individual Factor	No. of Items	Scale Midpoint	% Non-missing Data	Alpha	Mean
Risk Factors					
Rebelliousness	3	2.5	98.6	.71	1.9
Early initiation of problem behavior	9	4.0	98.4	.75	1.2
Impulsiveness	4	2.5	96.9	.44	2.1
Antisocial behavior	7	4.5	98.4	.79	1.2
Attitudes favorable toward antisocial behavior	4	2.5	98.5	.78	1.8
Attitudes favorable toward substance use	4	2.5	98.4	.85	1.7
Perceived risks of substance use	4	2.5	96.1	.79	1.8
Interaction with antisocial peers	7	3.0	98.1	.81	1.3
Friends' substance use	4	3.0	98.0	.85	2.0
Sensation seeking	3	3.5	97.3	.76	2.5
Rewards for antisocial involvement	3	3.0	96.9	.88	1.8
Protective Factors					
Social skills	4	2.5	96.7	.60	3.0
Belief in the moral order	4	2.5	98.5	.70	3.0

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.15 Profile of Community Risk and Protective Factors Among Michigan Public School Students, by Gender and Grade: 2000/2001

	Male				Female			
Community Factors	**6**	**8**	**10**	**12**	**6**	**8**	**10**	**12**
Risk Factors								
Low neighborhood attachment	10.7	17.5	16.2	19.4	11.0	14.4	19.9	24.0
Community disorganization	6.3	8.8	8.1	4.7	6.2	11.7	7.0	5.2
Personal transitions and mobility	10.7	12.5	7.4	8.4	18.3	14.3	8.9	8.3
Community transitions and mobility	7.9	16.1	9.0	10.2	12.3	16.8	13.5	14.0
Laws and norms favorable toward substance use	+	15.3	25.7	32.8	+	15.3	23.0	25.8
Perceived availability of drugs and handguns	5.6	30.6	62.0	78.4	+	29.1	61.0	78.6
Protective Factors								
Opportunities for conventional involvement	74.1	63.7	71.2	72.9	76.0	67.7	77.7	77.4
Rewards for conventional involvement	59.8	43.7	38.4	38.5	66.3	47.0	37.5	41.9

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

+Data suppressed due to low precision or low prevalence.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.16 Profile of School Risk and Protective Factors Among Michigan Public School Students, by Gender and Grade: 2000/2001

	Male				Female			
School Factors	**6**	**8**	**10**	**12**	**6**	**8**	**10**	**12**
Risk Factors								
Academic failure	15.2	26.9	29.9	25.8	12.0	19.1	20.9	13.1
Little commitment to school	10.2	31.0	42.8	46.0	5.4	19.0	32.0	31.0
Protective Factors								
Opportunities for positive involvement	91.0	80.5	77.2	77.4	90.3	83.1	80.6	78.8
Rewards for conventional involvement	71.7	51.8	38.8	38.1	73.6	57.7	40.5	44.6

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.17 Prevalence of Family Risk and Protective Factors Among Michigan Public School Students, by Gender and Grade: 2000/2001

	Male				Female			
Family Factor	**6**	**8**	**10**	**12**	**6**	**8**	**10**	**12**
Risk Factors								
Poor family management	+	6.8	7.8	13.3	+	5.3	6.4	7.8
Poor discipline	9.7	23.6	34.7	51.0	6.7	19.1	27.7	36.7
Parental attitudes favorable toward substance use	+	3.5	6.1	11.7	+	3.9	8.4	10.3
Parental attitudes favorable to antisocial behavior	+	4.4	4.3	4.4	+	+	+	+
Protective Factors								
Attachment	92.7	77.3	72.9	73.3	94.0	79.9	71.1	73.6
Opportunities for positive involvement	91.8	78.0	72.5	70.9	91.9	76.1	69.4	71.6
Rewards for conventional involvement	83.1	67.4	56.6	56.0	86.4	67.8	58.9	59.7

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

+Data suppressed due to low precision or low prevalence.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

Exhibit A.18 Profile of Peer-Individual Risk and Protective Factors Among Michigan Public School Students, by Gender and Grade: 2000/2001

	Male				Female			
Peer-Individual Factors	**6**	**8**	**10**	**12**	**6**	**8**	**10**	**12**
Risk Factors								
Rebelliousness	10.4	20.9	24.6	20.9	31.9	7.3	20.6	20.0
Early initiation of problem behavior	+	6.3	6.3	3.1	3.2	+	+	+
Impulsiveness	6.9	13.5	13.8	14.8	11.4	5.5	13.4	8.4
Antisocial behavior	+	+	+	+	+	+	+	+
Attitudes favorable toward antisocial behavior	4.0	13.7	18.1	9.5	20.3	+	10.5	7.9
Attitudes favorable toward substance use	+	8.3	21.3	7.4	31.9	+	17.7	18.0
Perceived risks of substance use	10.3	12.2	21.9	11.2	25.9	8.5	10.8	9.6
Interaction with antisocial peers	+	+	3.0	+	3.9	+	+	+
Friends' substance use	+	13.2	31.0	12.2	40.4	+	25.7	33.4
Sensation seeking	10.7	27.2	41.6	15.1	43.3	4.9	23.9	20.1
Rewards for antisocial involvement	+	9.6	16.3	12.6	14.3	+	18.4	13.5
Protective Factors								
Social skills	91.7	69.5	57.3	77.9	51.6	93.7	73.0	78.1
Belief in the moral order	93.1	67.8	56.5	75.7	51.1	93.9	67.0	75.5

Note: Each risk and protective factor scale was calculated as the average of one or more questions. Students whose scores placed them above the midpoint of the scale were considered "at risk" or "resilient" for a given factor. Figures in this table indicate percentage "at risk" or "resilient."

+Data suppressed due to low precision or low prevalence.

Source: Michigan Substance Abuse Risk and Protective Factors 2000/2001 Student Survey.

APPENDIX B

Weights and Suppression Rule for Prevalence Estimates

Appendix B

This appendix provides detailed explanations of weighting procedures and suppression rules.

B.1 Weights

This section provides a detailed description of weighting procedures. Each school within explicit stratum *h* was selected with the same probability, where *h*=1, 2, ..., 35.

Let N_h = number of schools on the frame within stratum h, and
n_h = number of schools selected within stratum h.

It follows that the school sample selection probability (π_{hi}) and the initial sampling weight (w_{hi}) for school *i* within stratum *h* are, respectively:

$$\pi_{hi} = n_h / N_h, \text{ and}$$
$$w_{hi} = N_h / n_h.$$

The initial sampling weights of responding schools were weighted up as follows.

Let

n_c^e = sum of weights for the eligible schools selected within weighting class *c* and
n_c^r = sum of weights for the responding schools within weighting class *c*.

Using the highest grade at the school to define the weighting classes, the weighting class adjustment (λ_c) is:

$$\lambda_c = n_c^e / n_c^r.$$

Therefore, our school nonresponse adjusted sampling weight (w_{hi}^a) for school *i* is defined as:

$$w_{hi}^a = w_{hi} * \lambda_c.$$

Since all students within the eligible grades were included in the survey with certainty, the initial student sampling weights (w_{hijk}) are identical to the school weight. That is, for grade *j* and student *k* :

$$w_{hijk} = w_{hi}^a.$$

Our student nonresponse adjustment was defined similar to that defined for schools. The student weighting classes were based on region by grade for public school students, and grade by regional group (1-3, 4-7) for private school students.

Let n_{c2}^{e} = sum of weights for the eligible students within student weighting class *c2*, and
n_{c2}^{r} = sum of weights for the respondent students within student weighting class *c2*.

The student weighting class adjustment (λ_{c2}) is:

$$\lambda_{c2} = n_{c2}^{e} / n_{c2}^{r}.$$

Therefore, our student nonresponse adjusted sampling weight (w_{hijk}^{a}) for student *k*, grade *j*, school *i* in stratum *h* is defined as:

$$w_{hijk}^{a} = w_{hijk} * \lambda_{c2}.$$

These weights were then post-stratified to public student counts based on the CCD. Given the post-stratified adjustment factor (A_{c2}), the final statistical analysis weight is defined as:

$$Aw_{hijk}^{a} = w_{hijk}^{a} * A_{c2}.$$

B.2 Suppression Rule for Prevalence Estimates

This section describes the rule used in this report to suppress unreliable prevalence estimates (i.e., rates that cannot be reported with confidence because they are based on small sample sizes or have large sampling errors). In defining a rule for deciding not to publish unreliable estimates, important goals are to be able to identify unreliable estimates easily and to have a rule that can be incorporated easily into software for producing tables.

One rule that has been used in national surveys (e.g., the National Household Survey on Drug Abuse [NHSDA] prior to 1990) is to suppress estimates if they have a relative standard error (RSE) greater than or equal to 50 percent of the prevalence estimate. The RSE is computed by dividing the standard error (SE) of the estimate by the estimate itself. That is,

RSE = SE(*p*)/*p*, where *p* is the estimated proportion and SE(*p*) denotes the standard error of the proportion *p*.

Although the 50 percent RSE rule is easy to implement and understand, it has some undesirable properties, particularly for small estimates. Specifically, the rule imposes a very stringent suppression requirement on small prevalence estimates but a very lax requirement on large rates. That is, small prevalence rates must have relatively large sample sizes to avoid being suppressed, but large rates require much smaller sample sizes. Given that most drug use and most risk factors are likely to be small, a rule that imposes stringent sample size requirements on small estimates would be less desirable.

Because of the limitation of the 50 percent RSE rule, a different suppression rule was used for the report on risk and protective factors among Michigan's student population. The rule used in this report is based on (a) a sample size requirement and (b) the RSE of the natural log of the estimate. Specifically, estimates were suppressed and shown as a single plus sign (+) in exhibits when

(a) the number of cases in the *denominator* was less than 30; or

(b) if an estimate was based on 30 or more cases in the denominator, it failed to pass the rule below, using the RSE of the natural log of the estimate p, where p is a proportion.

Specifically, estimates that were based on 30 or more cases in the denominator were suppressed if

RSE $[-ln(p)] > .275$ for $p <= .5$
RSE $[-ln(1-p)] > .275$ for $p > .5$

For computational purposes, note that $RSE[-ln(p)] = RSE(p)/[-ln(p)] = SE(p)/[-p\ ln(p)]$, where $SE(p)$ denotes the standard error of p, the estimated proportion.

Note that the sample size requirement for publishing estimates applied to the number of cases in the *denominator*, not the number of cases in the *numerator*. For example, if fewer than 30 respondents in the entire sample reported a particular behavior (e.g., use of cocaine in the month prior to the survey), the estimate could still be considered reliable if it passed the requirement based on the RSE of the natural log of the estimate.

Statisticians at RTI developed the rule based on the RSE of the natural log of the estimate through their work on the NHSDA and the Washington, DC, Metropolitan Area Drug Study (DC*MADS), a comprehensive study of drug use and related issues in that metropolitan area.

The rule based on the RSE of the natural log is more liberal with regard to reporting smaller estimates but more stringent with regard to larger estimates. Under the rule based on the natural log of the RSE, for example, prevalence estimates of 1 percent would require a sample size of 61 to be presented. In comparison, a suppression rule based on RSE(p) > .50 would require an effective sample size of 400 respondents to publish percentages of approximately 1 percent.

Estimated percentages that failed to pass the suppression criteria were shown as a single plus sign (+) in the exhibits. In situations where a population *count* was shown (i.e., estimated number of students in Michigan showing a characteristic of interest), the estimated number was suppressed if the corresponding proportion of the population showing this characteristic did not pass the suppression criteria.

An additional convention was implemented for *very small* percentages (i.e., < 0.05 percent) that passed the suppression criteria but would round to zero if shown to only one decimal place in the prevalence tables. These estimates are also shown as a plus sign (+). If an estimated percentage was less than 0.05 percent, any accompanying estimate of the number of people showing this characteristic was shown with a plus sign. This was done to minimize any confusion or misunderstanding that could occur if an estimated percentage was reported as rounding to zero, yet an estimated number of people had been shown.

APPENDIX C

Data Collection Materials

(Note: In this web version of the report this entire appendix is not included. It contains copies of sample letters to schools and parents, the questionnaire, class administration instructions, and other related technical material. Printed versions of the report (available at public libraries in Michigan) contain the complete Appendix C, for those readers wanting to access the data collection materials. These materials are also available on request to the contact point listed on the Acknowledgments page at the beginning of this report.)